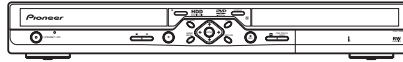


Service Manual



DVR-533H-S

ORDER NO.
RRV3173

DVD RECORDER

DVR-533H-S

DVR-633H-S

DVR-531H-S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Region No.	Serial No. Please confirm 3rd & 4th alphabetical letters.
DVR-533H-S	KUXV	AC120V	1	&&DL#####\$
DVR-533H-S	KCXV	AC120V	1	&&DL#####\$
DVR-633H-S	KUXV/CA	AC120V	1	&&DL#####\$
DVR-531H-S	KUXV/CA	AC120V	1	&&DL#####\$
DVR-531H-S	KCXV	AC120V	1	&&DL#####\$

- When servicing this model, some service procedures may reset the customer settings to the factory default settings. Make sure to explain this to the customer.

An HDD (Hard Disc Drive) is mounted in this product.

The HDD is a precision instrument very vulnerable to shock and electrostatic charges. Please read "7.3 Cautions on Handling the HDD" in this manual and exercise sufficient caution when handling the HDD itself, as well as the product with the HDD built in.

When an HDD becomes defective and inoperable, restoration of the user's data recorded on the HDD, or copying of the user's recorded data to other media (such as a new HDD) is totally impossible. Before servicing, OBTAIN THE USER'S PRIOR CONSENT to that effect.

The user must be made aware that all recorded data are deleted if the HDD is initialized.



For details, refer to "Important Check Points for Good Servicing" .

1 2 3 4

SAFETY INFORMATION

!

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.



WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65



NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

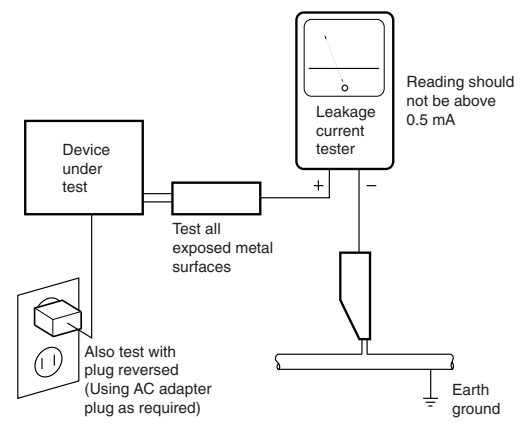
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

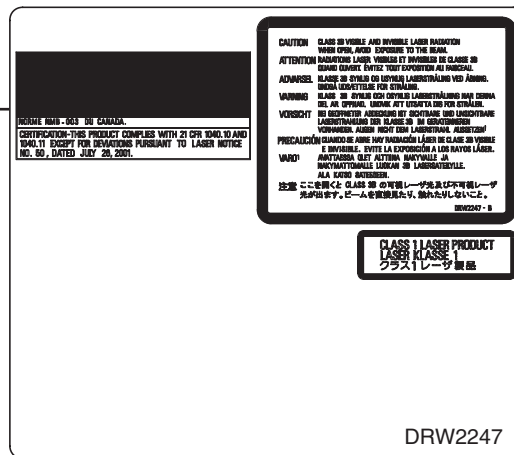
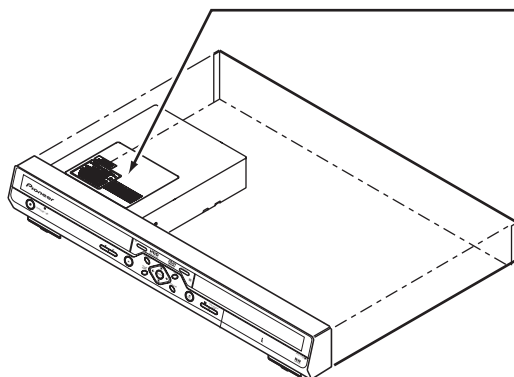
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

■ LABEL CHECK

IMPORTANT
THIS PIONEER APPARATUS CONTAINS
LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS
SHOULD BE DONE BY A SPECIALLY
INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 100 mW
WAVELENGTH: 654 - 662 nm

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mW
WAVELENGTH: 770 - 810 nm



Additional Laser Caution

1. The ON/OFF (ON: low level, OFF: high level) status of the CLAMP signals for detecting the loading state are detected by the drive CPUs, and the design prevents laser diode oscillation when the CLAMP signal turns OFF.
In normal operation, if no disc is clamped, the laser diode oscillation is disabled.
However, the interlock does not always operate in the test mode.
2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 3A laser beam.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety



Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

- ① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

- ② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

- ③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

- ④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

- ⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

- ⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

- ⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

- ⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

- ⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

- ⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments



To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts



Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning



For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws



To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

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1. SPECIFICATIONS

General

System	HDD, DVD-Video, DVD-R/RW, Video-CD, CD, CD-R/RW (WMA, MP3, JPEG, CD-DA)
Power requirements	120 V, 60 Hz
Power consumption	
DVR-531H-S	.43 W
DVR-532H-S	.43 W
DVR-533H-S	.43 W
DVR-633H-S	.46 W
Power consumption in standby mode	0.42 W
	(Front panel display: off)
Weight	3.9 kg (8 lb 6 oz)
Dimensions	420 (W) x 59 (H) x 273 (D) mm (16 9/16 (W) x 2 3/8 (H) x 10 3/4 (D) in.)
Operating temperature	+5°C to +35°C (+41°F to +95°F)
Operating humidity	5% to 85% (no condensation)
TV format	NTSC

Recording

Recording format	DVD Video Recording DVD-VIDEO
------------------	----------------------------------

Recordable discs

DVD-RW (DVD Re-recordable disc)
DVD-R (DVD Recordable disc)

Video recording format

Sampling frequency	13.5MHz
Compression format	MPEG

Audio recording format

Sampling frequency	48kHz
Compression format	Dolby Digital or Linear PCM (uncompressed)

Recording time

HDD (160GB)

XP+	Approx. 23 hours
Fine (XP)	Approx. 34 hours
Standard Play (SP)	Approx. 68 hours
Long Play (LP)	Approx. 136 hours
Extended Play (EP)	Approx. 204 hours
Super Long Play (SLP)	Approx. 272 hours
Super Extended Play (SEP)	Approx. 340 hours
Manual Mode (MN)	Approx. 23–455 hours

HDD (80GB)

XP+	Approx. 11 hours
Fine (XP)	Approx. 17 hours
Standard Play (SP)	Approx. 34 hours
Long Play (LP)	Approx. 68 hours
Extended Play (EP)	Approx. 102 hours
Super Long Play (SLP)	Approx. 136 hours
Super Extended Play (SEP)	Approx. 170 hours
Manual Mode (MN)	Approx. 17–227 hours

DVD-R/DVD-RW

Fine (XP)	Approx. 1 hour
Standard Play (SP)	Approx. 2 hours
Long Play (LP)	Approx. 4 hours
Extended Play (EP)	Approx. 6 hours
Super Long Play (SLP)	Approx. 8 hours
Super Extended Play (SEP)	Approx. 10 hours
Manual Mode (MN)	Approx. 1–13 hours

Tuner

Receivable channels

VHF	2–13ch
UHF	14–69ch
CATV	C1–C125ch

Timer

Programs	1 month/32 programs
Clock	Quartz lock (12-hour digital display)
Power off memory	Approx. 5 years (after manufacture)

Input/Output

VHF/UHF antenna input/output terminal	VHF/UHF set 75Ω (F-shape connector)
Video input	Input 1,3 (rear), 2 (front)
Input level	1 Vp-p (75Ω)
Jacks	RCA jack
Video output	Output 1,2
Output level	1 Vp-p (75Ω)
Jacks	RCA jack
S-Video input	Input 1, 3 (rear), 2 (front)
Y (luminance) - Input level	1 Vp-p (75Ω)
C (color) - Input level	300 mVp-p (75Ω)
Jacks	4 pin mini DIN
S-Video output	Output 1,2
Y (luminance) - Output level	1 Vp-p (75Ω)
C (color) - Output level	300 mVp-p (75Ω)
Jacks	4 pin mini DIN
Component video output	
Output level	Y: 1.0 Vp-p (75Ω) P _B , P _R : 0.7 Vp-p (75Ω)
Jacks	RCA jacks
Audio input	Input 1, 3 (rear), 2 (front) L/R
Input level	
During audio input	2V rms (Input impedance: more than 22 kΩ)
Jacks	RCA jacks
Audio output	Output 1,2 L/R
During audio output	2V rms (Output impedance: less than 1.5 kΩ)
Jacks	RCA jacks
Control input	Mini jack
DV input	4 pin (front) (DVR-633/533H-S only) (i.LINK/IEEE 1394 standard)
G-LINK™	Mini jack

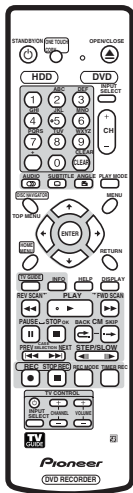
Supplied accessories

Remote control	1
Dry cell batteries (AA/R6P)	2
Audio / Video cable (red/white/yellow)	1
G-LINK™ cable	1
RF antenna cable	1
Power cable	1
Blank DVD-RW disc	1
Quick Start Guide	
Operating Instructions	
Warranty card	1

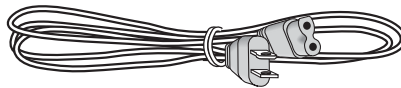
Note: The specifications and design of this product are subject to change without notice, due to improvement.

● Accessories

- Remote control ×1
(VXX2967)



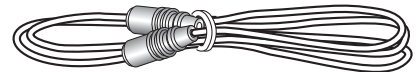
- Power cable ×1
(ADG7075)



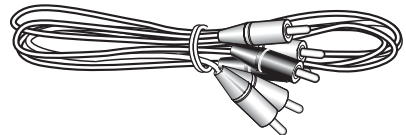
- Dry cell batteries ×2
(AA/R6P)



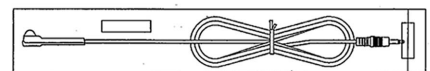
- RF antenna cable(PAL) ×1
(VDE1088)



- Audio / Video cable(1.5m) ×1
(red/white/yellow)
(VDE1077)




- IR Blaster ×1
(VDX1010)

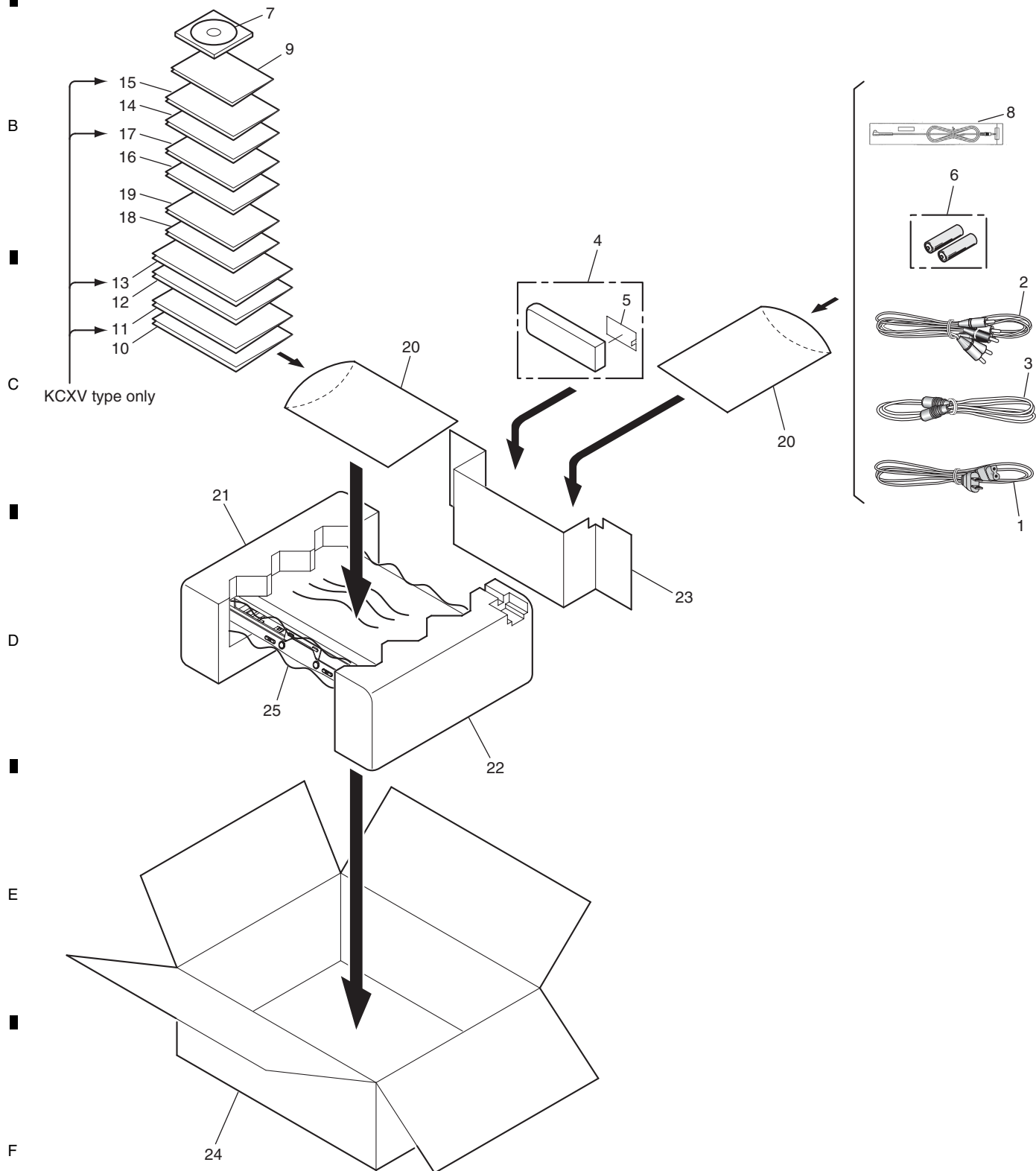


2. EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Screws adjacent to ▼ mark on product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.
(In the case of no amount instructions, apply as you think it appropriate.)

2.1 PACKING



(1) PACKING SECTION PARTS LIST

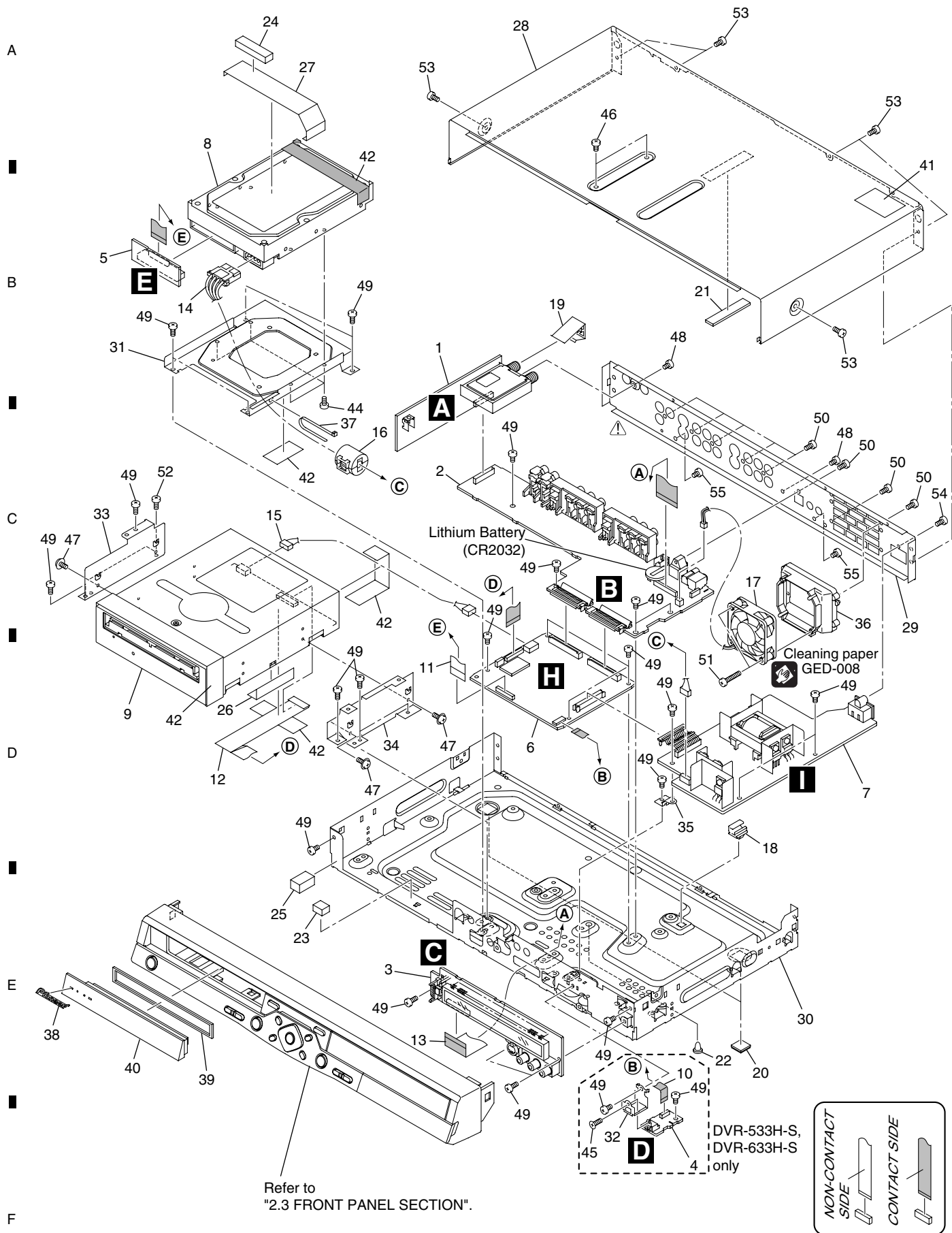
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Power Cable	ADG7075	16	Quick Guide (English)	VRG1013
2	Audio / Video Cable (1.5m)	VDE1077	17	Quick Guide (French)	See Contrast table (2)
3	RF Antenna Cable	VDE1088	18	HDD Caution 8L B	VRR1062
4	Remote Control Unit	VXX2967	19	HDD Caution 8L	VRR1063
5	Battery Cover	AZA7424	20	Polyethylene Bag B5	VHL1088
NSP 6	Dry Cell Battery (R6P, AA)	VEM1030	21	Left Pad	VHA1386
NSP 7	DVD-RW Disc ver. 1.1	VZZ1003	22	Right Pad	VHA1387
8	IR Blaster	VDX1010	23	Remote Control Holder	VHC1139
NSP 9	Warranty Card	ARY7045	24	Packing Case	See Contrast table (2)
10	Operating Instructions (English)	VRB1407	25	Mirror Mat	VHL1089
11	Operating Instructions (French)	See Contrast table (2)			
12	Dual Layer IM (English)	VRB1392			
13	Dual Layer IM (French)	See Contrast table (2)			
14	Quick Start Guide (English)	VRG1010			
15	Quick Start Guide (French)	See Contrast table (2)			

(2) CONTRAST TABLE

DVR-533H-S/KUXV, KCXV, DVR-633H-S/KUXV/CA, DVR-531H-S/KCXV and KUXV/CA are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-533H-S /KUXV	DVR-533H-S /KCXV	DVR-633H-S /KUXV/CA	DVR-531H-S /KCXV	DVR-531H-S /KUXV/CA
	11	Operating Instructions (French)	Not used	VRC1306	Not used	VRC1306	Not used
	13	Dual Layer IM (French)	Not used	VRC1280	Not used	VRC1280	Not used
	15	Quick Start Guide (French)	Not used	VRL1010	Not used	VRL1010	Not used
	17	Quick Guide (French)	Not used	VRL1011	Not used	VRL1011	Not used
	24	Packing Case	VHG2597	VHG2598	VHG2599	VHG2654	VHG2596

2.2 EXTERIOR SECTION



(1) EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	TUNB Assy (for service)	VXX3024	NSP 31	HDD Stay	VNE2369	
2	JACB Assy	See Contrast table (2)	32	DV Angle	See Contrast table (2)	A
3	FLJB Assy	VWG2536	NSP 33	Writer Stay L	VNE2371	
4	DVJB Assy	See Contrast table (2)	NSP 34	Writer Stay R	VNE2372	
5	ATAB Assy	VWV2123	NSP 35	PCB Base	VNE2378	
6	MAIN Assy (for service)	See Contrast table (2)	36	Fan Duct	VNK5693	
△ 7	POWER SUPPLY Unit	VWR1391	NSP 37	Binder (BK-1)	ZCA-BK1	
8	HDD	See Contrast table (2)	38	Pioneer Name Plate	VAM1148	
9	DRIVE Assy R9R	VXX2987	39	Tray Sheet	VEC2467	
10	Flexible Cable (16P)	See Contrast table (2)	40	Tray Panel A	VNK5703	
11	Flexible Cable (40P)	VDA2065	41	Bonnet Label	VRW2171	B
12	Flexible Cable (40P)	VDA2066	NSP 42	Tape	ZTA-156A-19	
13	Flexible Cable (27P)	VDA2067	43	•••••		
14	Housing Assy (4P)	VKP2357	44	#6-32 Screw	DBA1125	
15	Housing Assy (4P)	VKP2358	45	Screw	See Contrast table (2)	
16	Ferrite Core	VTH1050	46	Screw	BSZ30P060FTC	
17	DC Fan Motor	VXM1120	47	Screw	AMZ30P060FTC	
NSP 18	P. Plate Holder	PNY-405	48	Screw	BSZ30P040FTC	
19	Earth Plate TU	VBK1156	49	Screw	BBZ30P060FTC	
20	Rubber Foot	VEB1349	50	Screw	BPZ30P080FTC	C
21	Rubber Spacer (CR)	VEB1373	51	Screw	BPZ30P250FTC	
NSP 22	PC Support	VEC1749	52	Screw	BSR30P060FTC	
23	Gasket 10 x 7T	VEC2472	53	Screw	BSZ30P060FTC	
24	Gasket 40 x 5T	VEC2473	54	Screw	PBZ30P080FTC	
25	Gasket 10 x 25T	VEC2475	55	Screw	BBZ30P060FTC	
26	Aluminum Tape 50 x 25	VEF1058				
27	Aluminum Tape 135 x 25	VEF1059				
28	Bonnet Case S	VXX3039				
29	Rear Panel	See Contrast table (2)				
NSP 30	Base Chassis	VNB1052				D

(2) CONTRAST TABLE

DVR-533H-S/KUXV, KCXV, DVR-633H-S/KUXV/CA, DVR-531H-S/KCXV and KUXV/CA are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-533H-S /KUXV	DVR-533H-S /KCXV	DVR-633H-S /KUXV/CA	DVR-531H-S /KCXV	DVR-531H-S /KUXV/CA
	2	JACB Assy	VWV2111	VWV2111	VWV2111	VWV2112	VWV2112
	4	DVJB Assy	VWG2523	VWG2523	VWG2523	Not used	Not used
	6	MAIN Assy (for service)	VXX2993	VXX2993	VXX2993	VXX2994	VXX2994
	8	HDD 80G WD800BBJKC S	VXF1066	VXF1066	Not used	VXF1066	VXF1066
	8	HDD 160G WD1600BBGUC S	Not used	Not used	VXF1068	Not used	Not used
	10	Flexible Cable (16P)	VDA2064	VDA2064	VDA2064	Not used	Not used
	29	Rear Panel	VNA2771	VNA2771	VNA2792	VNA2794	VNA2794
	32	DV Angle	VNE2370	VNE2370	VNE2370	Not used	Not used
	45	Screw	VBA1098	VBA1098	VBA1098	Not used	Not used

1 2 3 4

2.3 FRONT PANEL SECTION

A

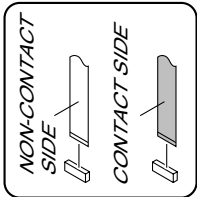
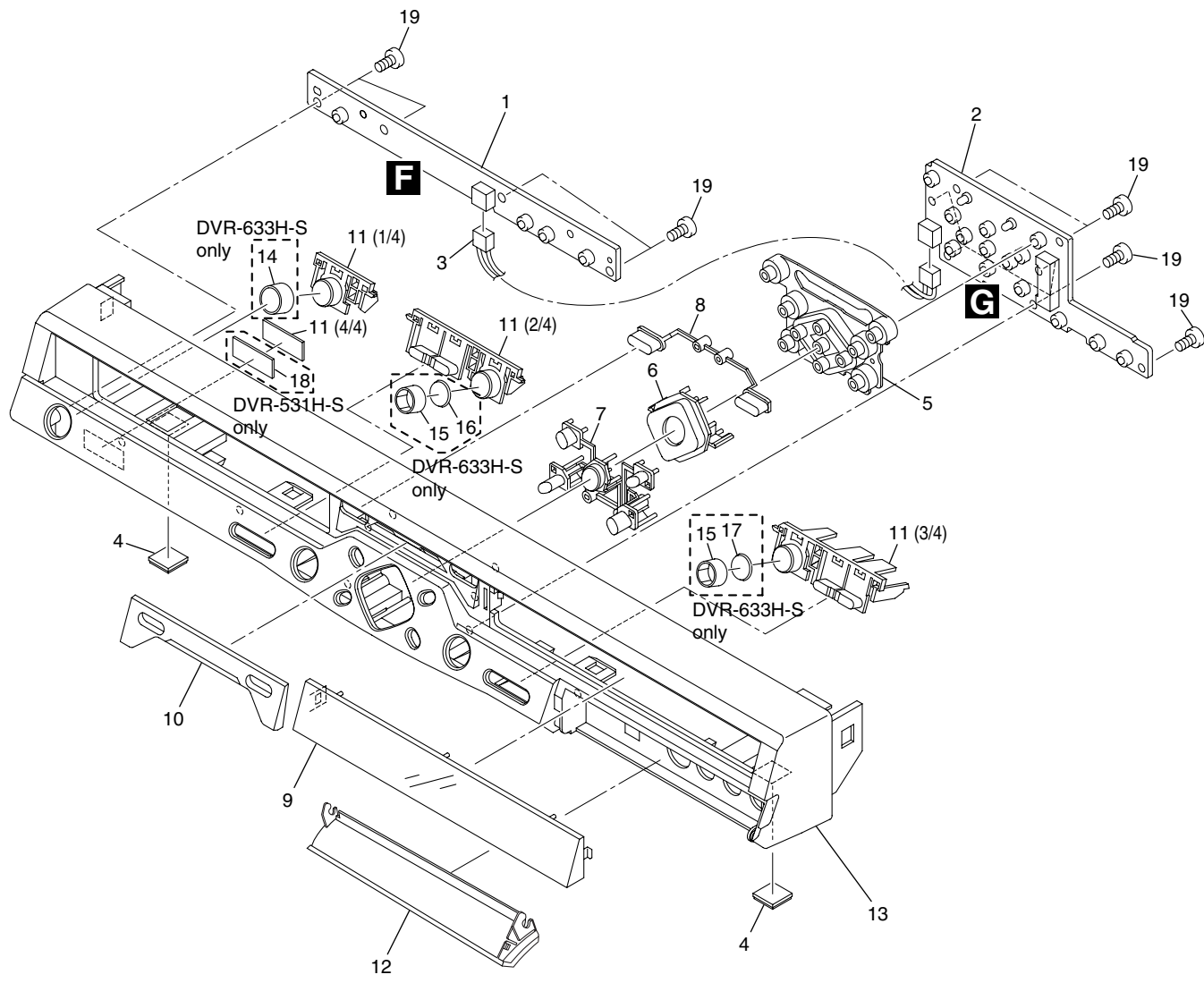
B

C

D

E

F



(1) FRONT PANEL SECTION PARTS LIST

Mark No.	Description	Part No.
1	PSWB Assy	VWG2524
2	RSWB Assy	VWG2528
3	Housing Assy (3P)	VKP2360
4	Rubber Foot	VEB1349
5	Rubber Hinge	VEB1371
6	Cursor Key	VNK5695
7	Enter Key	VNK5696
8	Eject Key A	VNK5697
9	FL Lens A	VNK5698
10	Center Lens AC	VNK5699
11	Main Key A	See Contrast table (2)
12	Door A	See Contrast table (2)
13	Front Panel A	See Contrast table (2)
14	Key Top A	See Contrast table (2)
15	Ring A	See Contrast table (2)
16	PLAY Plate A	See Contrast table (2)
17	REC Plate A	See Contrast table (2)
18	Sensor-matic Seal	See Contrast table (2)
19	Screw	BPZ30P080FTC

(2) CONTRAST TABLE

DVR-533H-S/KUXV, KCXV, DVR-633H-S/KUXV/CA, DVR-531H-S/KCXV and KUXV/CA are constructed the same except for the following:

Mark	No.	Symbol and Description	DVR-533H-S /KUXV	DVR-533H-S /KCXV	DVR-633H-S /KUXV/CA	DVR-531H-S /KCXV	DVR-531H-S /KUXV/CA
	11	Main Key A	VNK5701	VNK5701	Not used	VNK5701	VNK5701
	11	Main Key Base A	Not used	Not used	VNK5737	Not used	Not used
	12	Door A	VNK5702	VNK5702	VNK5702	VNK5815	VNK5815
	13	Front Panel A	VNK5730	VNK5730	VNK5818	VNK5817	VNK5817
	14	Key Top A	Not used	Not used	VNK5717	Not used	Not used
	15	Ring A	Not used	Not used	VNK5738	Not used	Not used
	16	PLAY Plate A	Not used	Not used	VNK5739	Not used	Not used
	17	REC Plate A	Not used	Not used	VNK5740	Not used	Not used
	18	Sensor-matic Seal	Not used	Not used	Not used	VAN1004	VAN1004

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

3.1.1 OVERALL BLOCK DIAGRAM

A

B

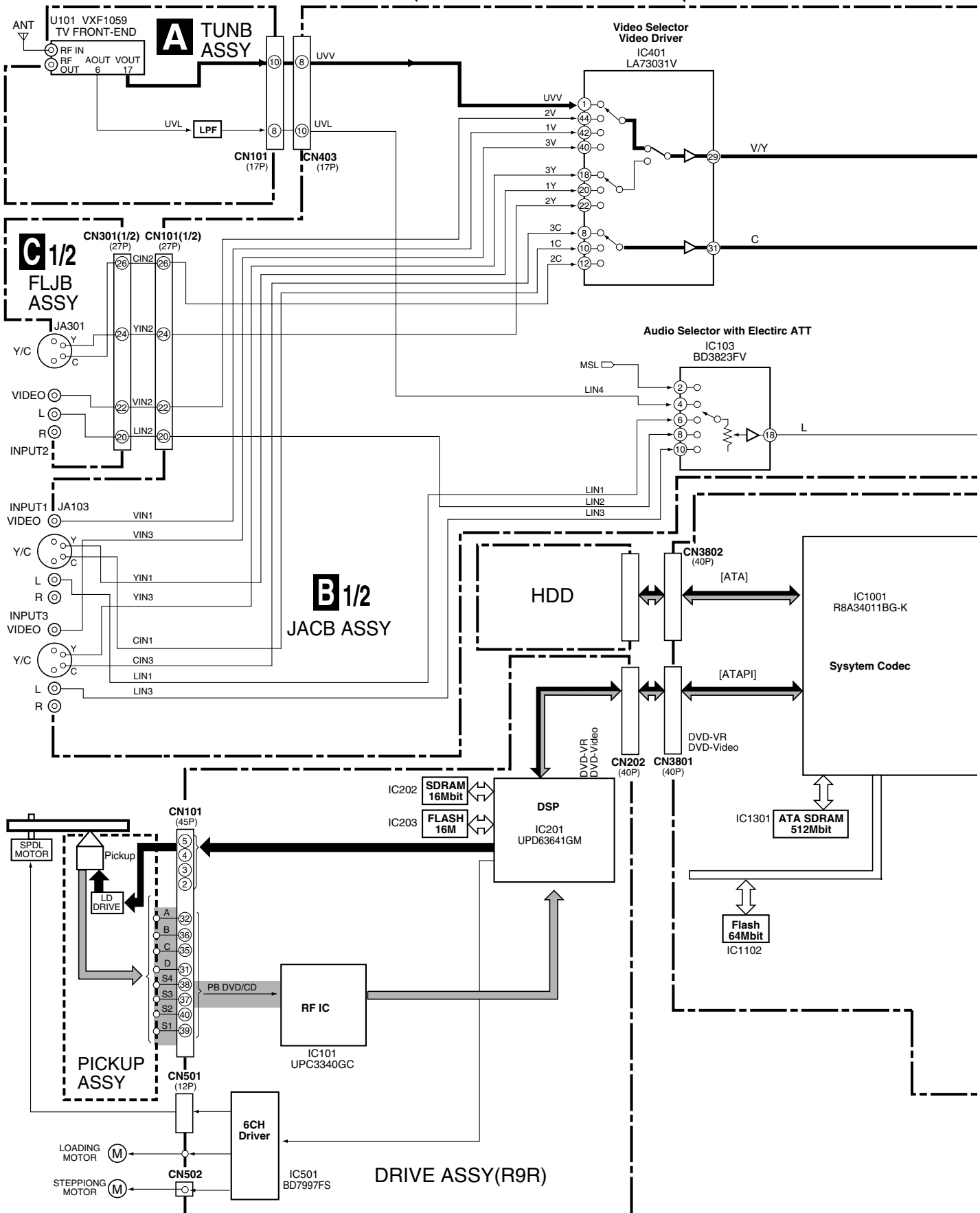
C

D

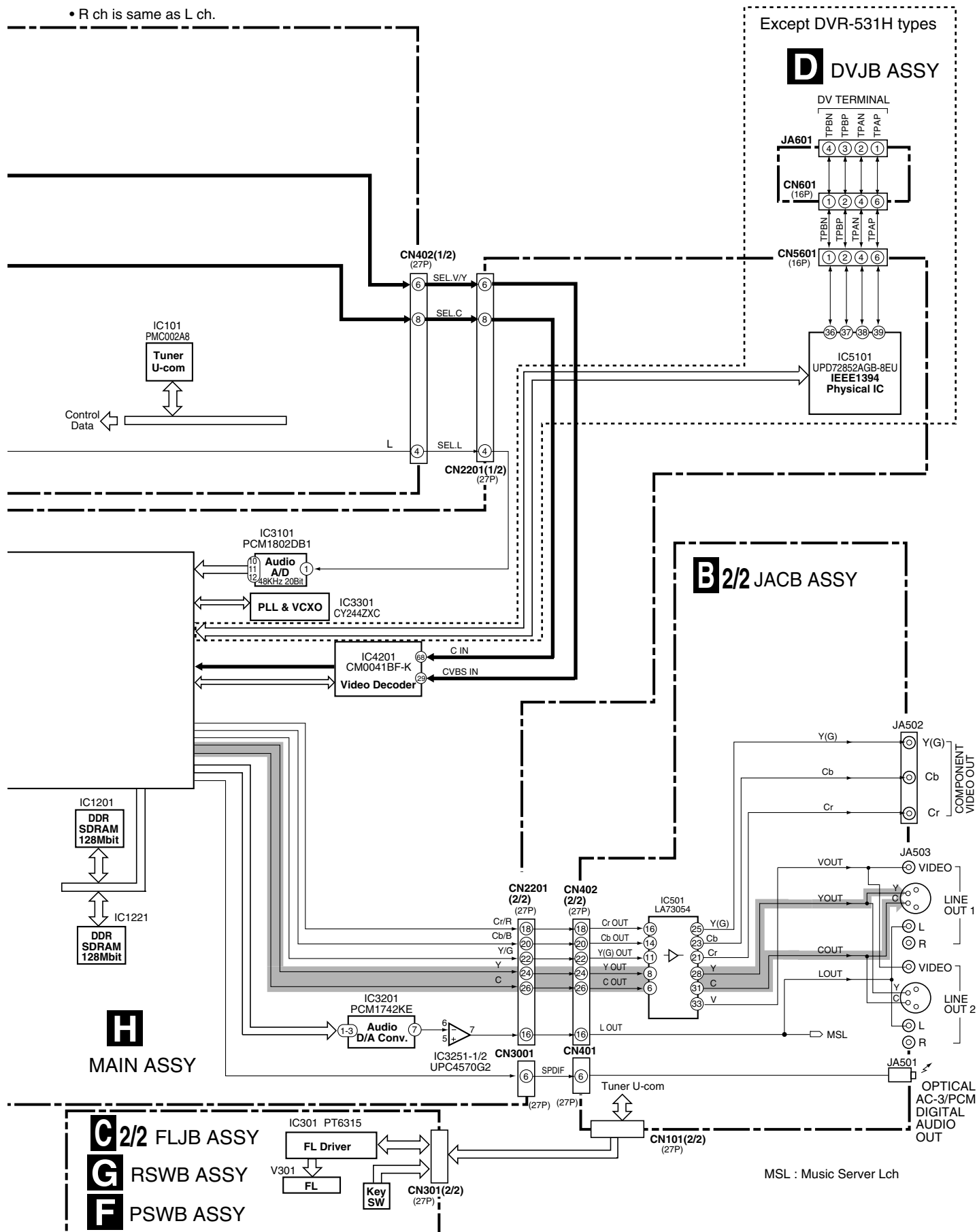
E

F

← : Recording system signal route ← : Playback system signal route



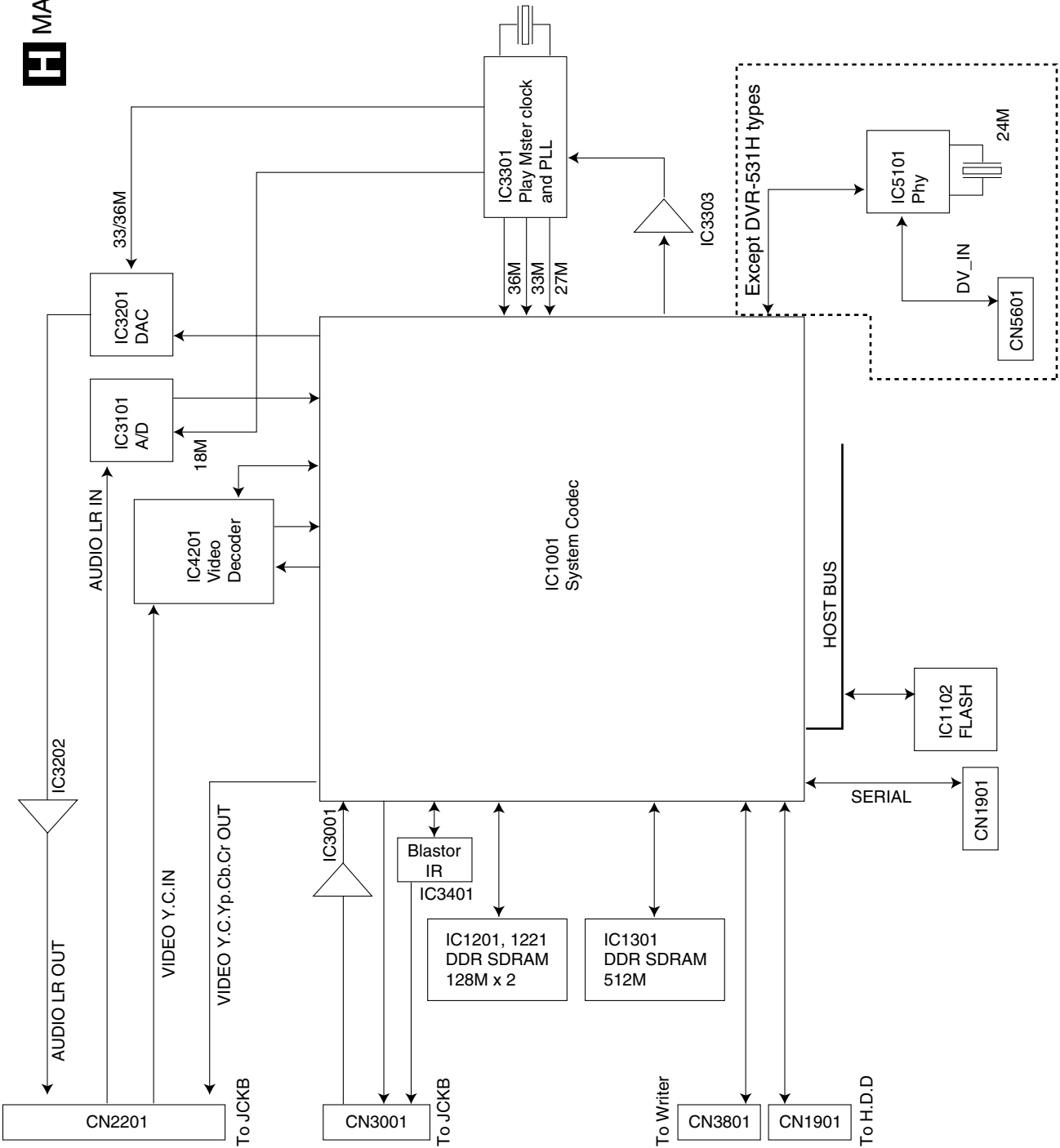
• R ch is same as L ch.



3.1.2 MAIN ASSY

A
B
C
D
E
F

MAIN ASSY



■

5

■

6

■

7

■

8

■

A

■

B

■

C

■

D

■

E

■

F

■

5

■

6

■

7

■

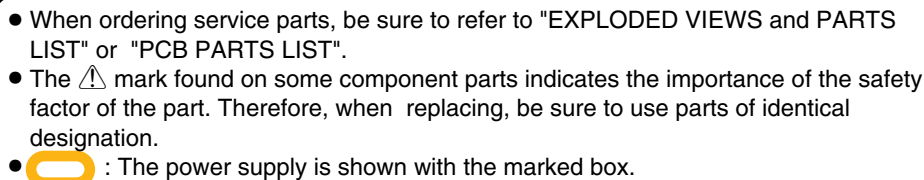
8

■

DVR-533H-S

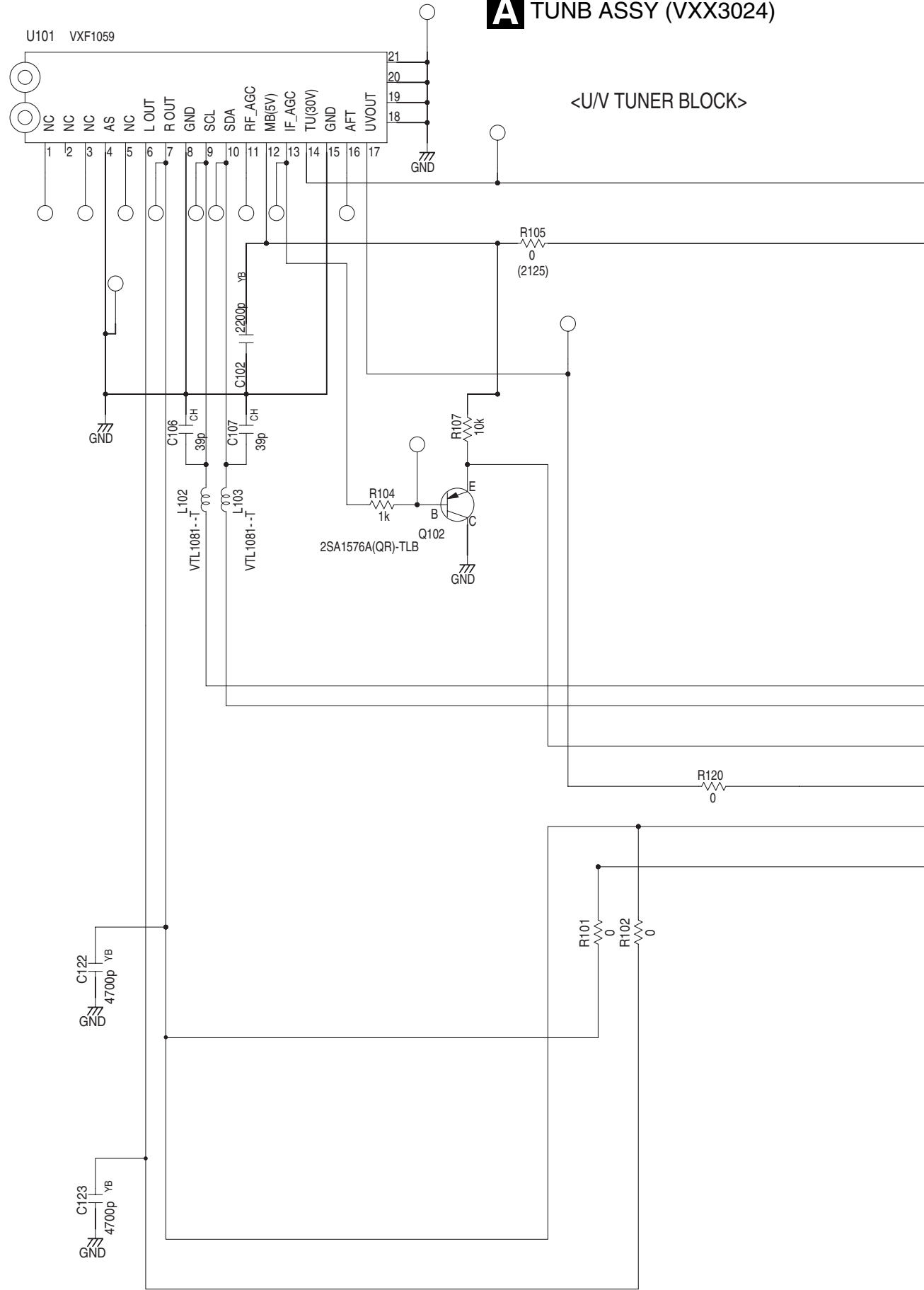
4



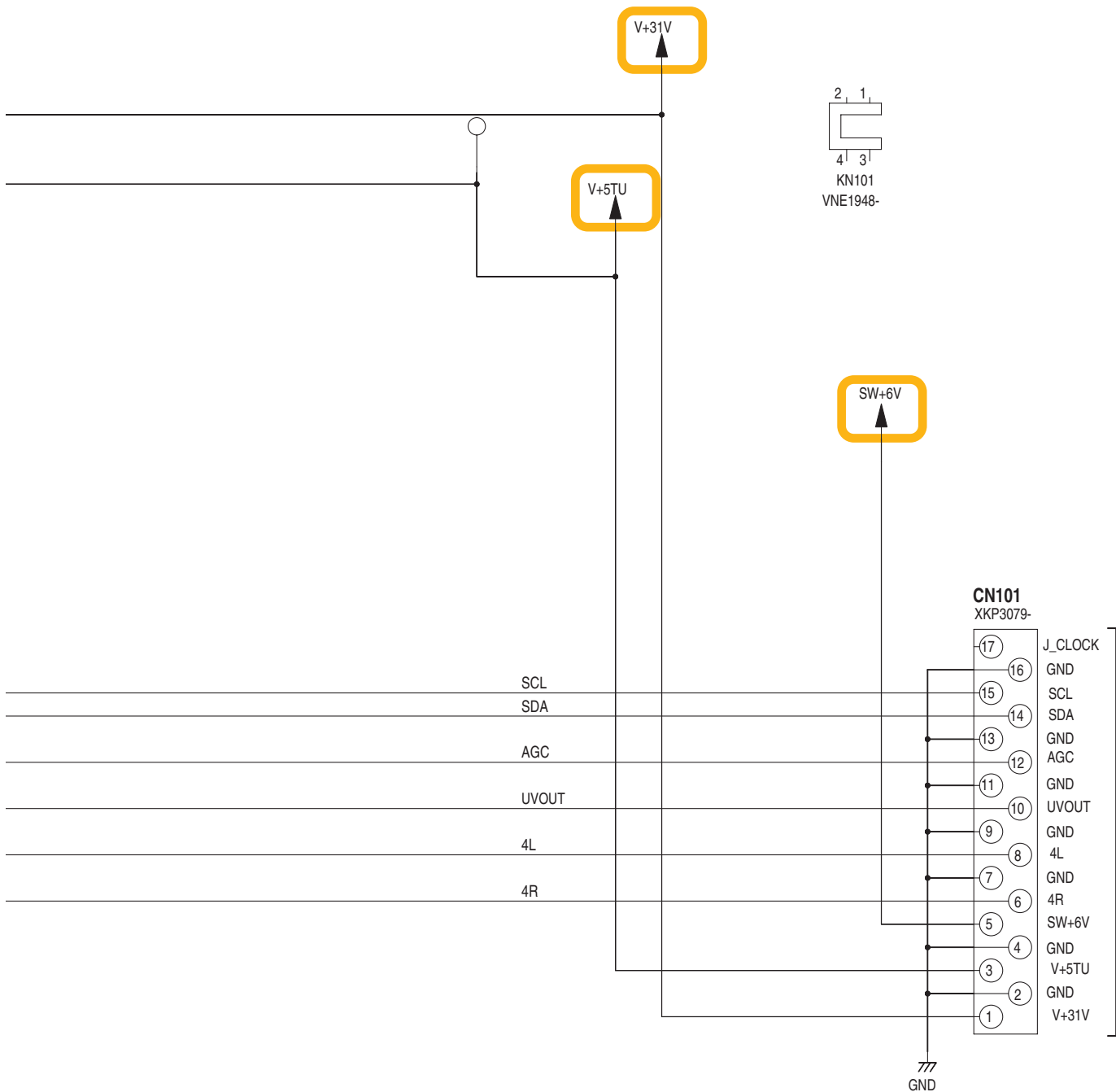


3.3 TUNB ASSY

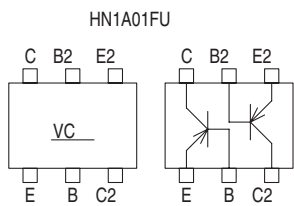
A TUNB ASSY (VXX3024)



A



B 2/2 CN403

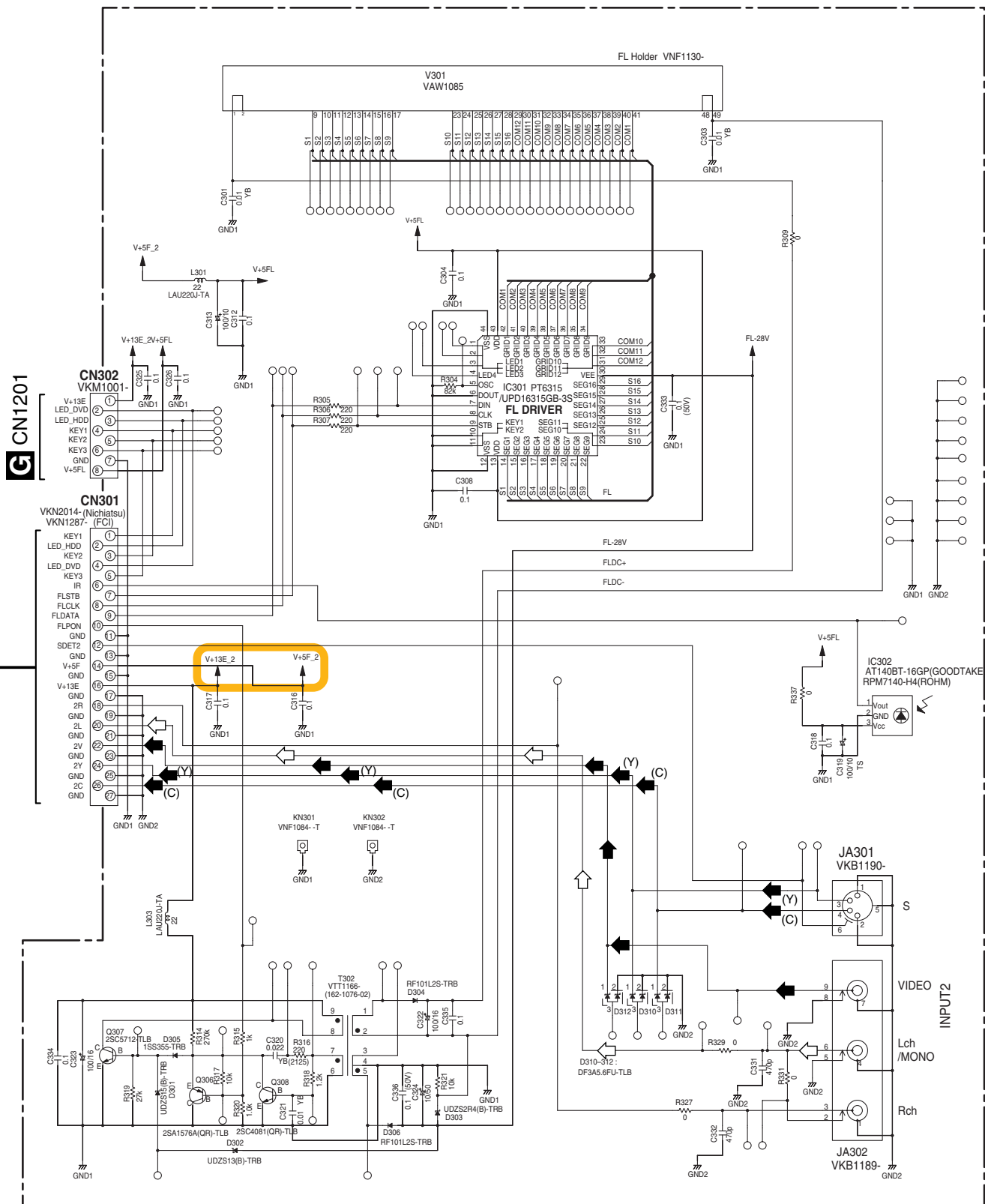


B 1/2



C FLJB ASSY (VWG2536)

- ➡ : Video Signal Route
- (Y) ➡ : Y Video Signal Route
- (C) ➡ : C Video Signal Route
- ⬅ : AUDIO SIGNAL ROUTE (L ch)
- (T) ⬅ : AUDIO SIGNAL ROUTE (TUNER L ch)



3.5 JACB ASSY(2/2)

A

B

C

D

E

F

H 3/5 CN3001

H 2/5 CN2201

A CN101

B 2/2

B 2/2

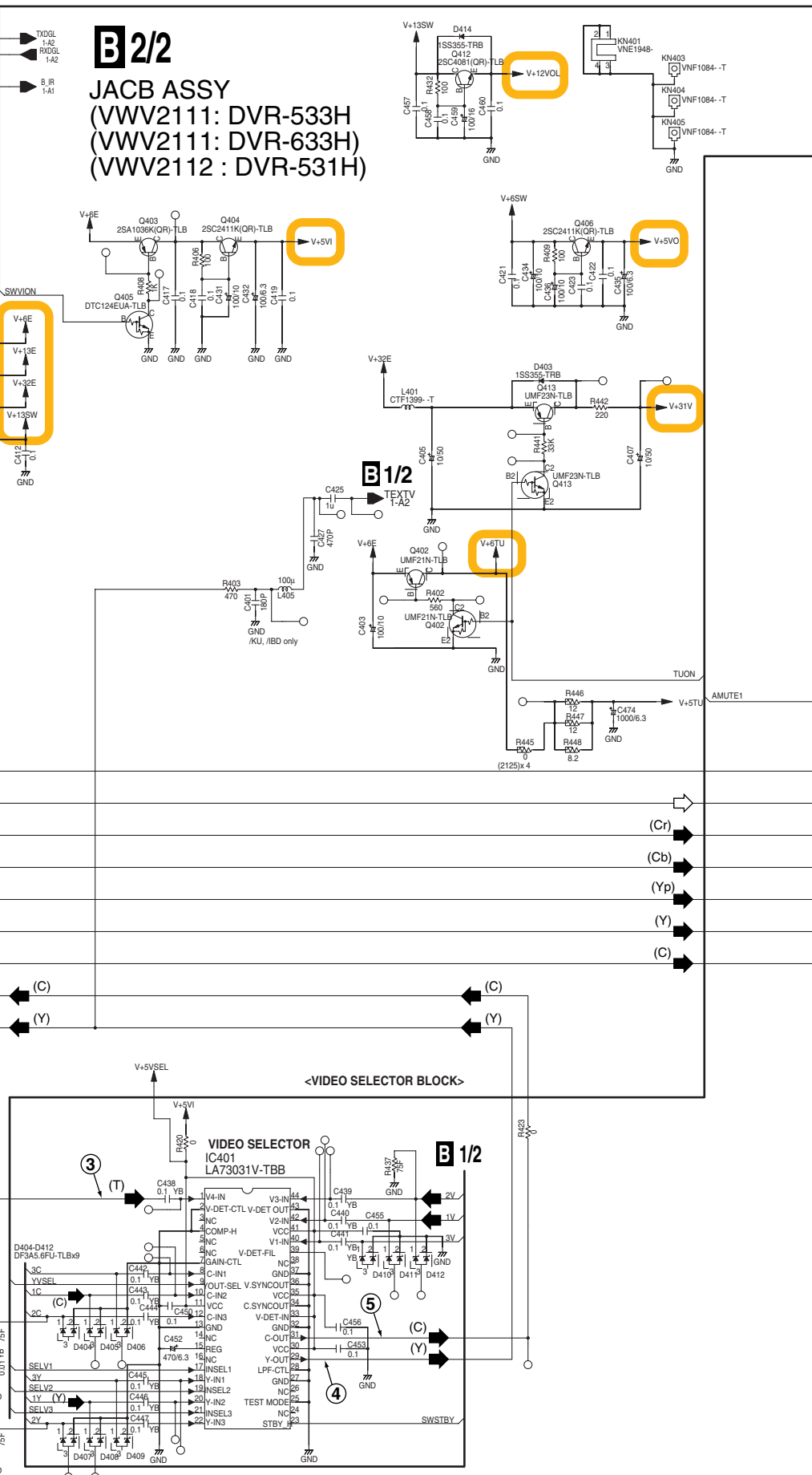
JACB ASSY
(VWV2111: DVR-533H
(VWV2111: DVR-633H)
(VWV2112 : DVR-531H)

B 1/2

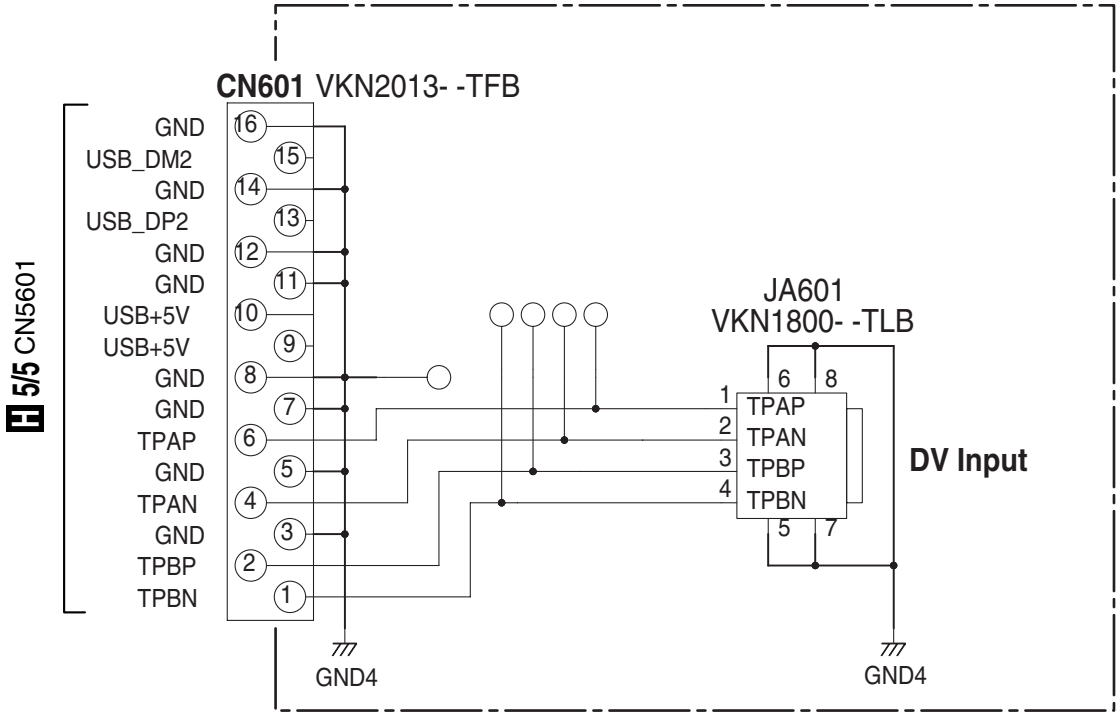
B 1/2

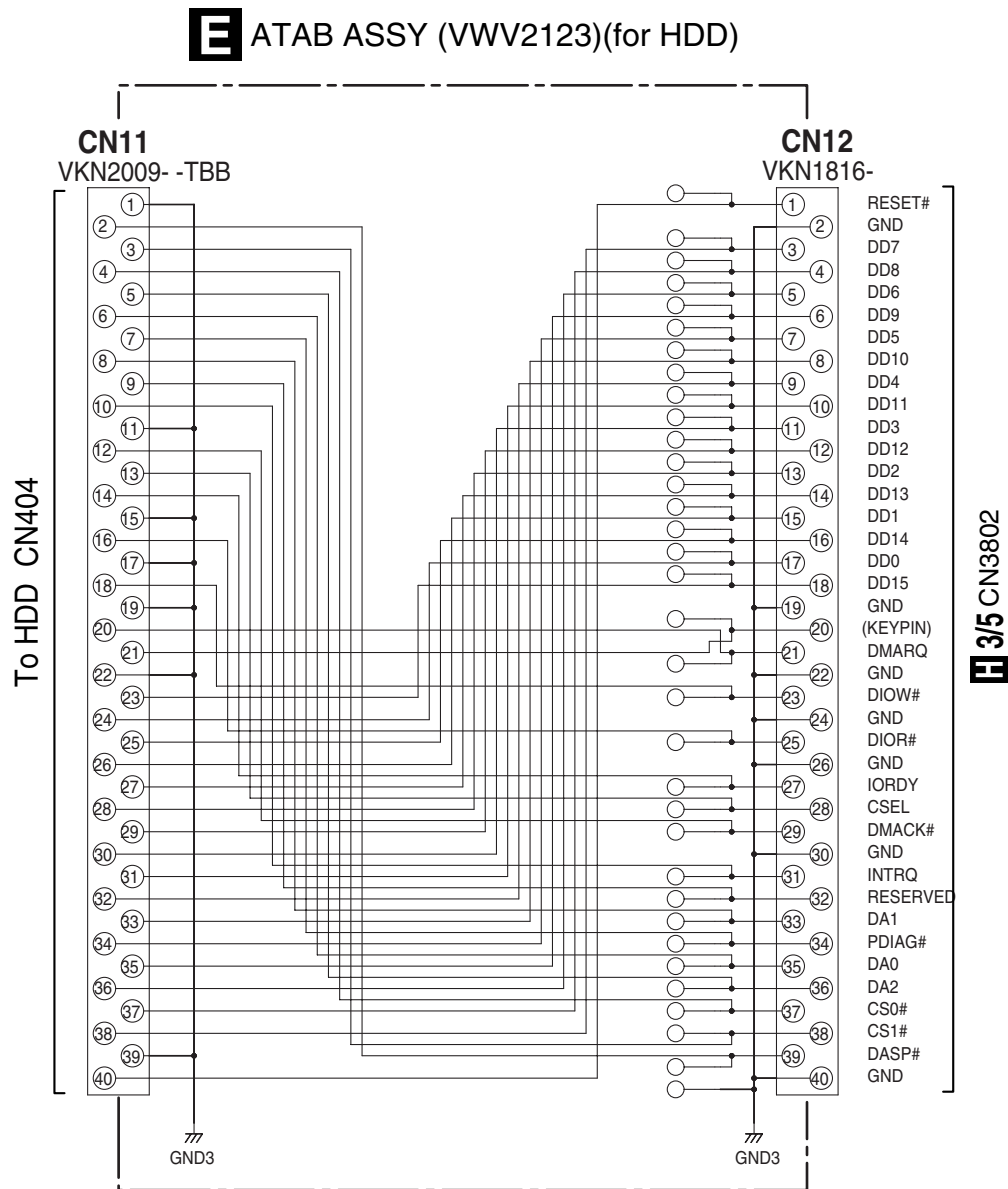
B 1/2

B 1/2



D DVJB ASSY (VWG2523)





1 2 3 4

3.8 PSWB and RSWB ASSYS

A

B

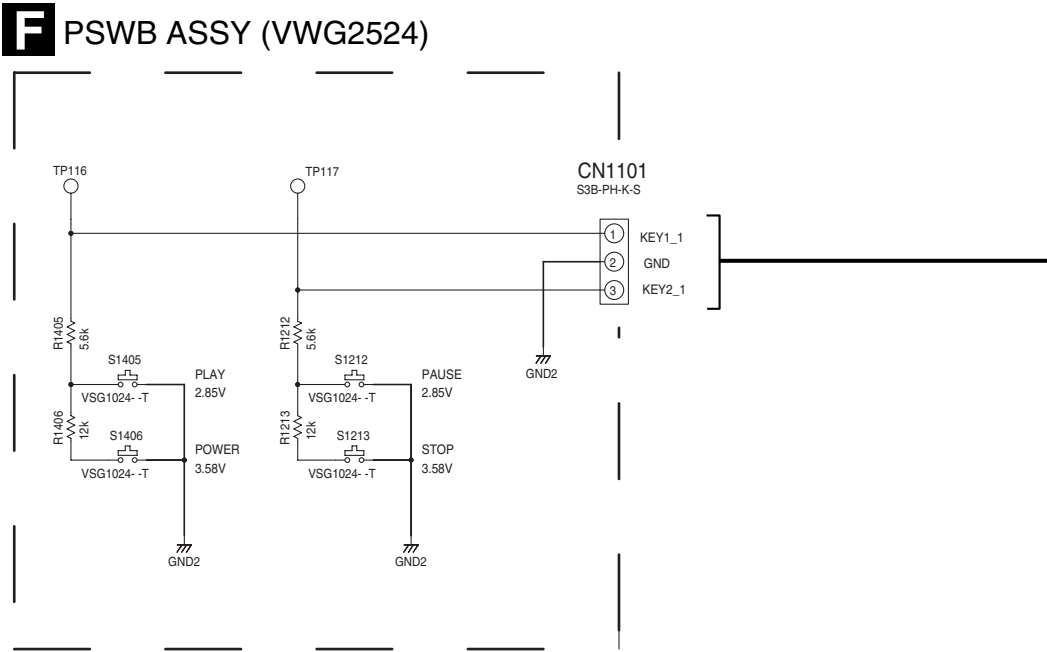
C

D

E

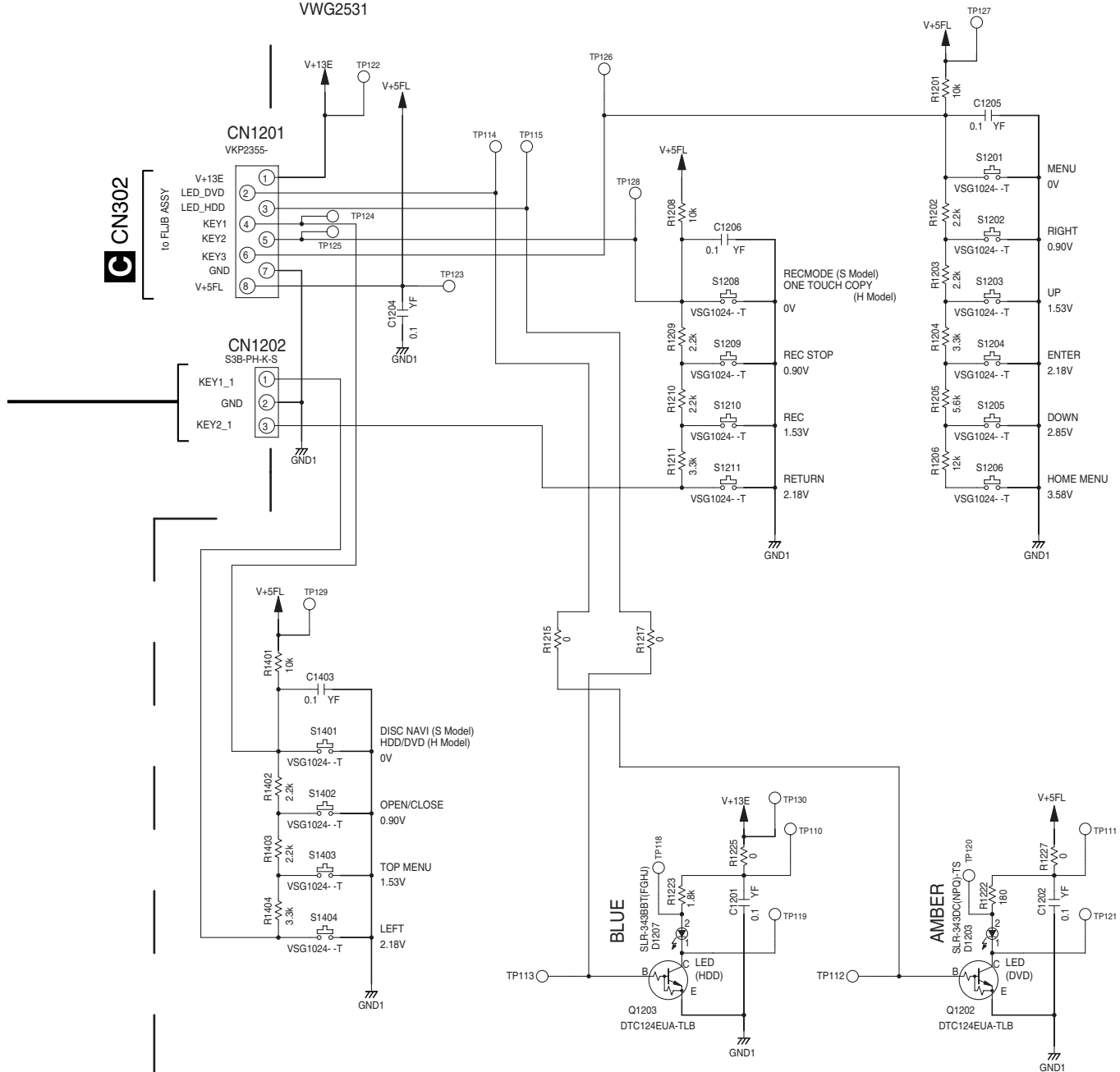
F

Switches
S1212:PAUSE
S1213:STOP
S1405:PLAY
S1406:POWER



G RSWB ASSY (VWG2528)

RSWB ASSY
VWG2528
VWG2531

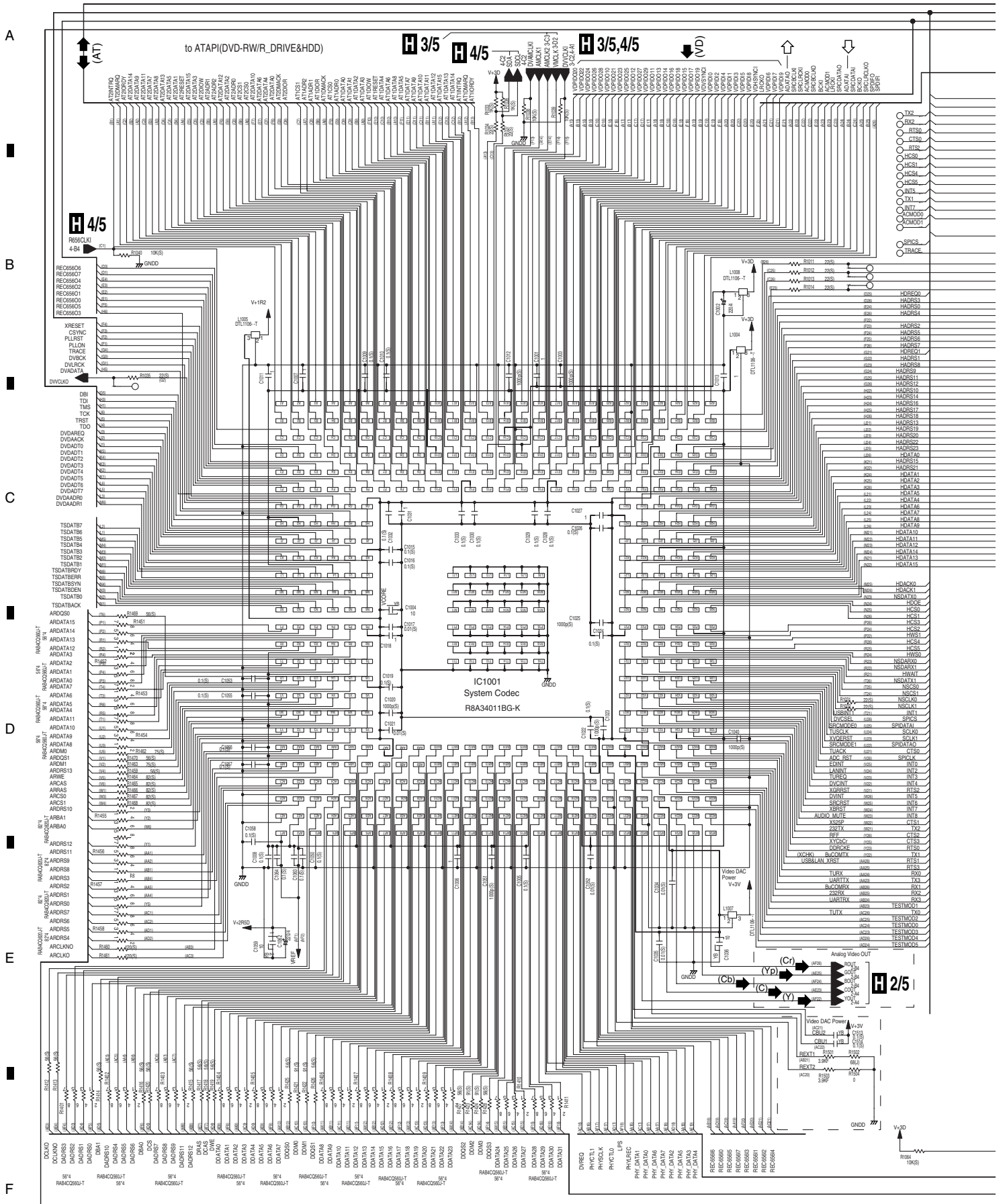


Switches

S1201:MENU
S1202:RIGHT
S1203:UP
S1204:ENTER
S1205:DOWN
S1206:HOME MENU

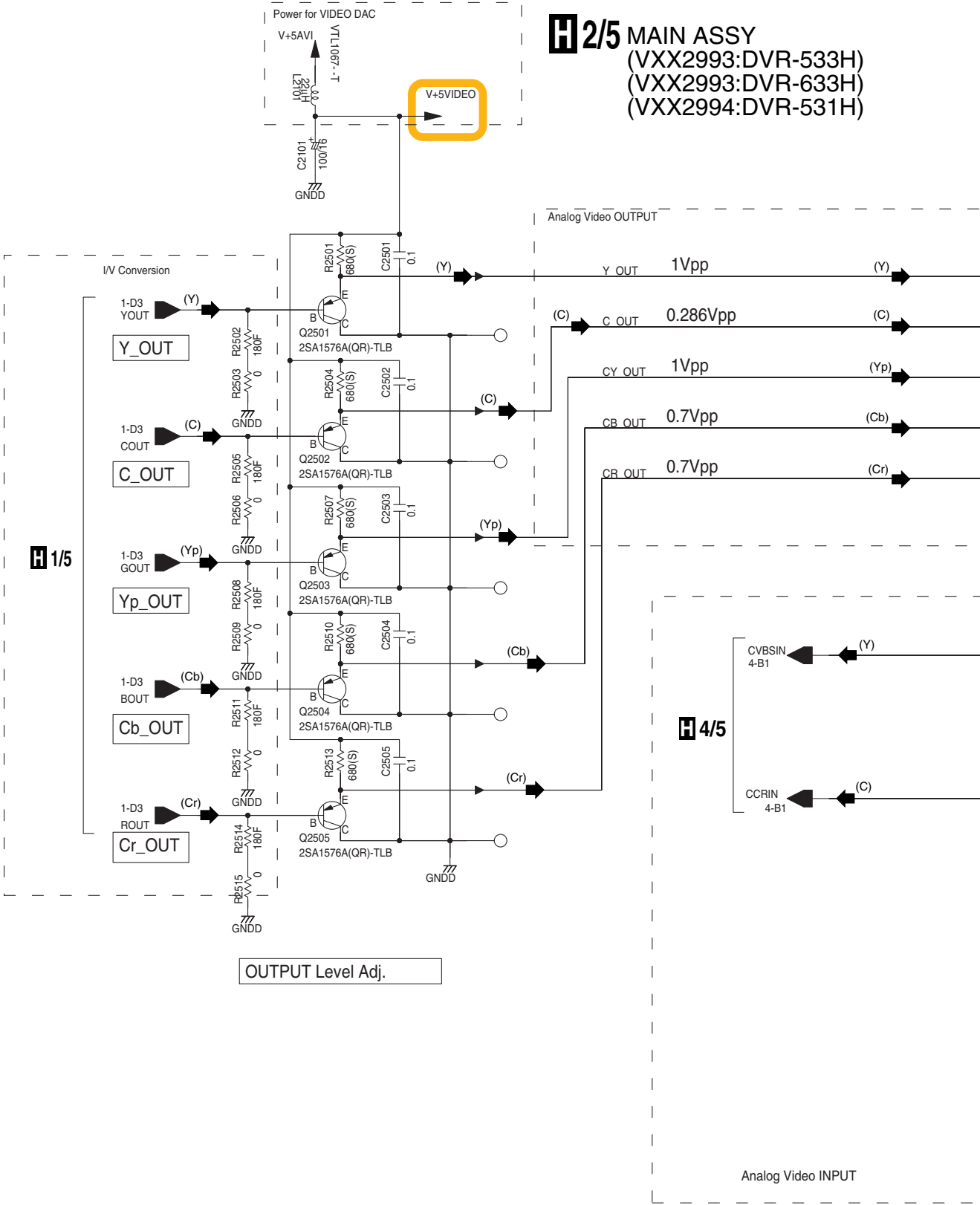
S1208:ONE TOUCH COPY
S1209:REC STOP
S1210:REC
S1211:RETURN
S1401:HDD/DVD
S1402:OPEN/CLOSE
S1403:TOP MENU
S1404:LEFT

3.9 MAIN ASSY(1/5)



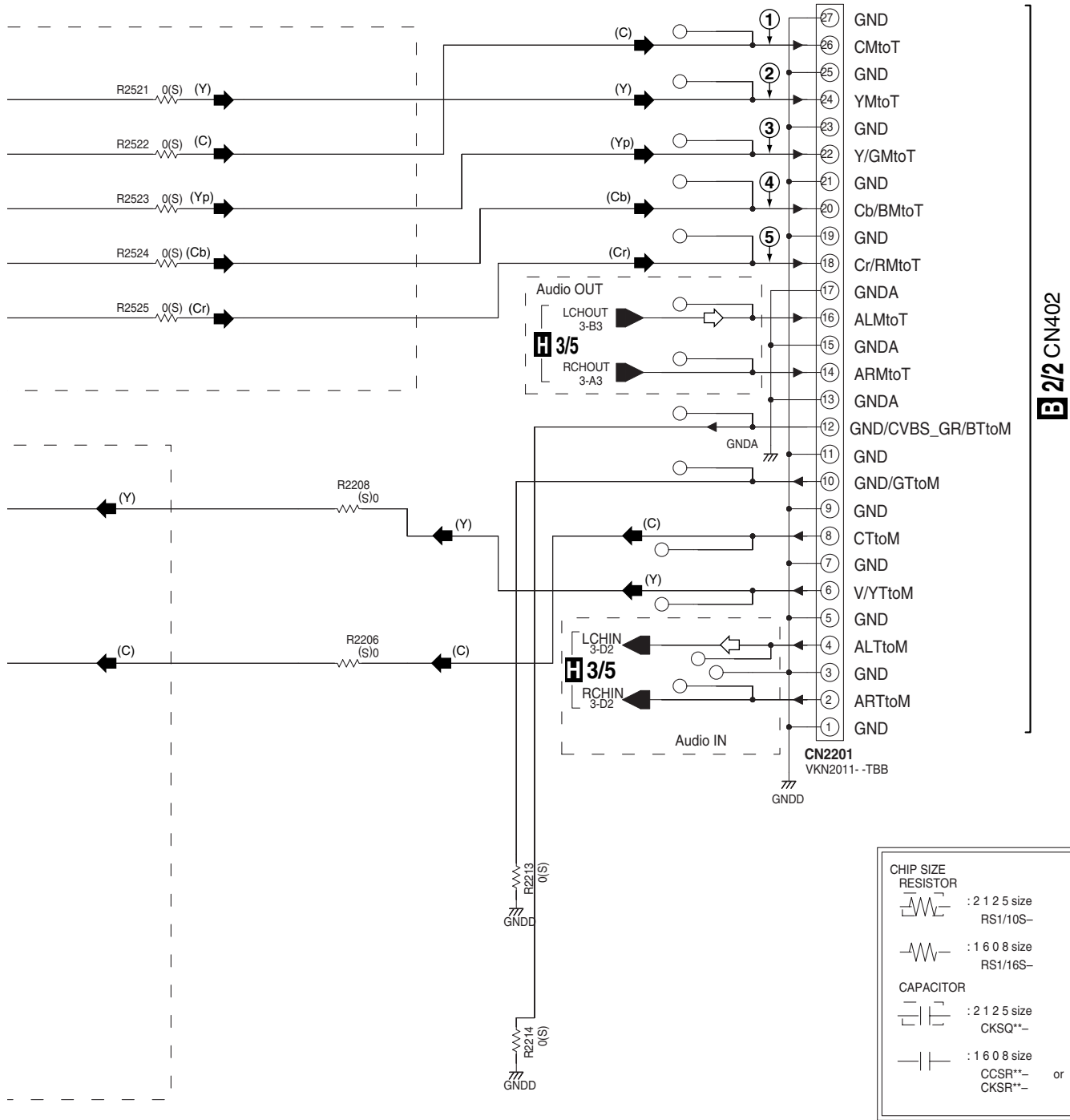


3.10 MAIN ASSY(2/5)

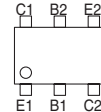
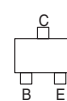
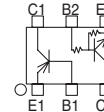


H 2/5 MAIN ASSY
(VXX2993:DVR-533H)
(VXX2993:DVR-633H)
(VXX2994:DVR-531H)

(Y) : Y Video Signal Route
 (C) : C Video Signal Route
 (Cr) : Cr Video Signal Route
 (Cb) : Cb Video Signal Route
 (Yp) : Yp Video Signal Route
 □ : Audio Signal Route (L ch)



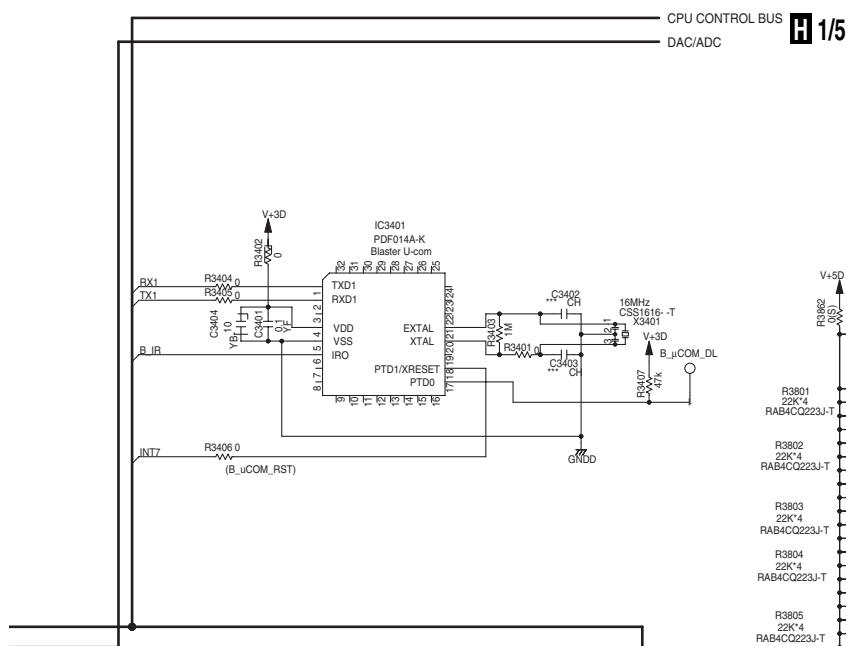
UMF21N-TLB



H 2/5

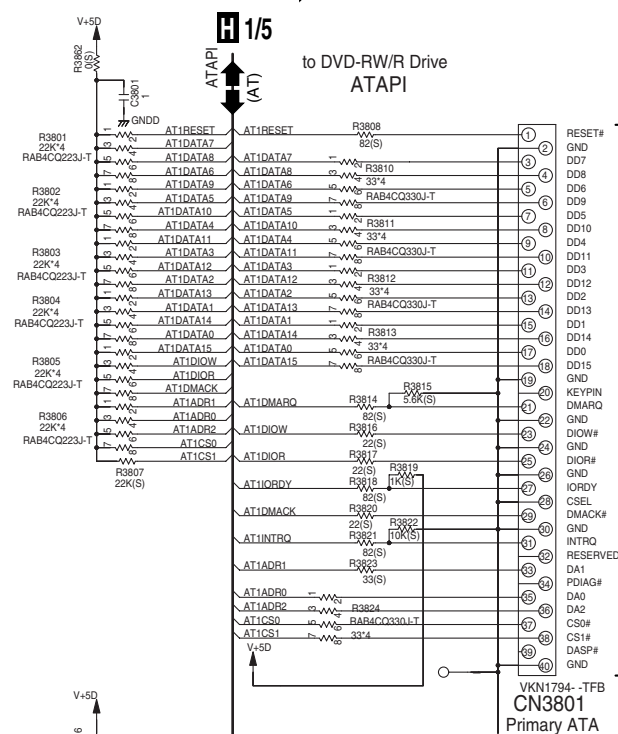
△



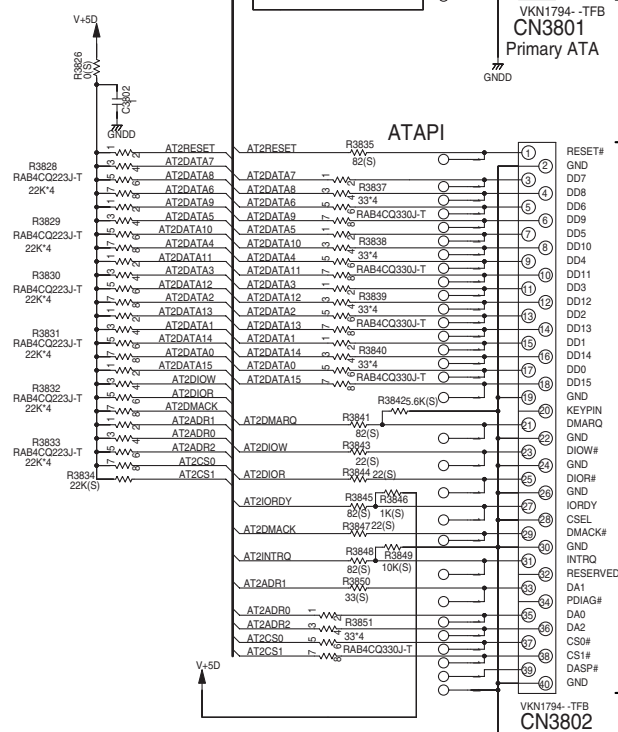


3/5 MAIN ASSY (VXX2993:DVR-533H) (VXX2993:DVR-633H) (VXX2994:DVR-531H)

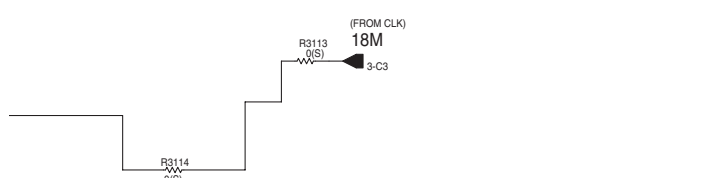
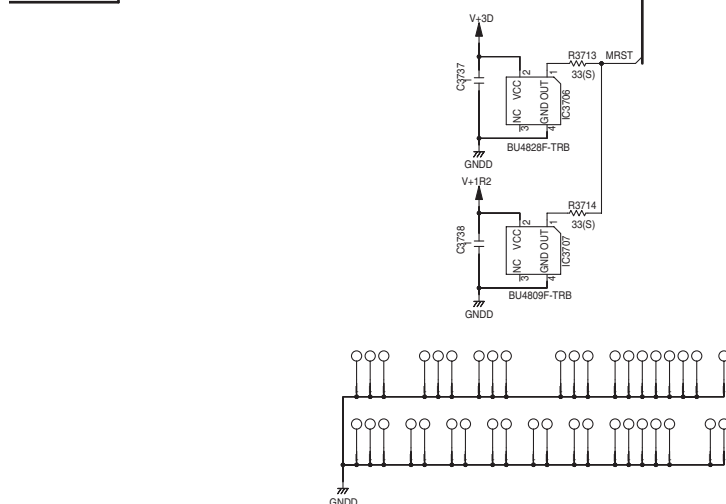
(AT) → : ATAPI Data Signal Route
⇨ : Audio Signal Route (L ch)



To DRIVE ASSY R9R CN9003



E CN12



H 4/5

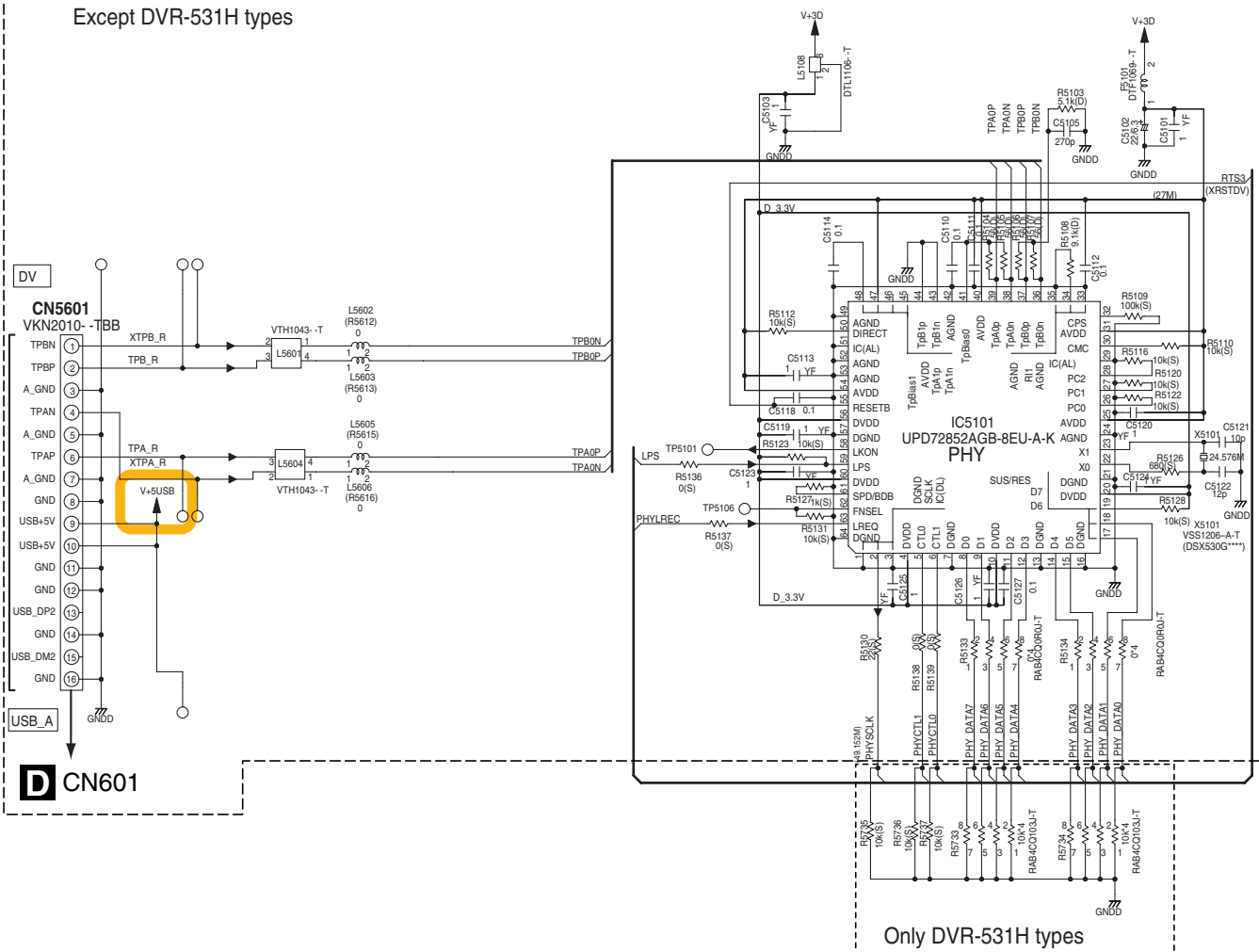




3.13 MAIN ASSY(5/5)

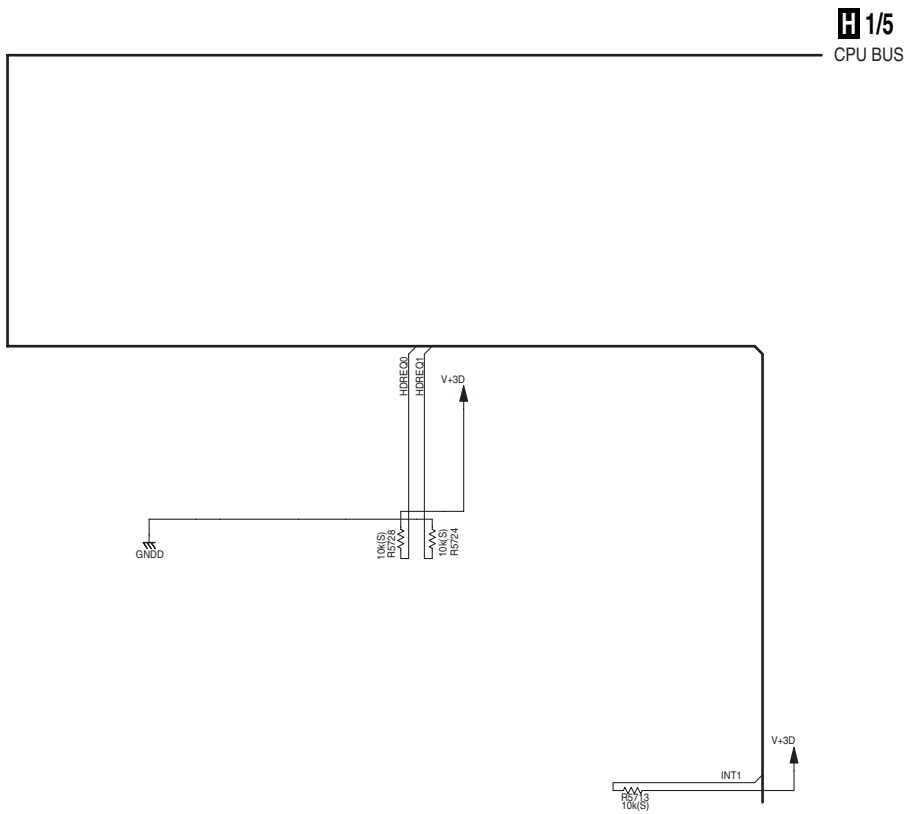
H 5/5 MAIN ASSY
(VXX2993:DVR-533H)
(VXX2993:DVR-633H)
(VXX2994:DVR-531H)

Except DVR-531H types



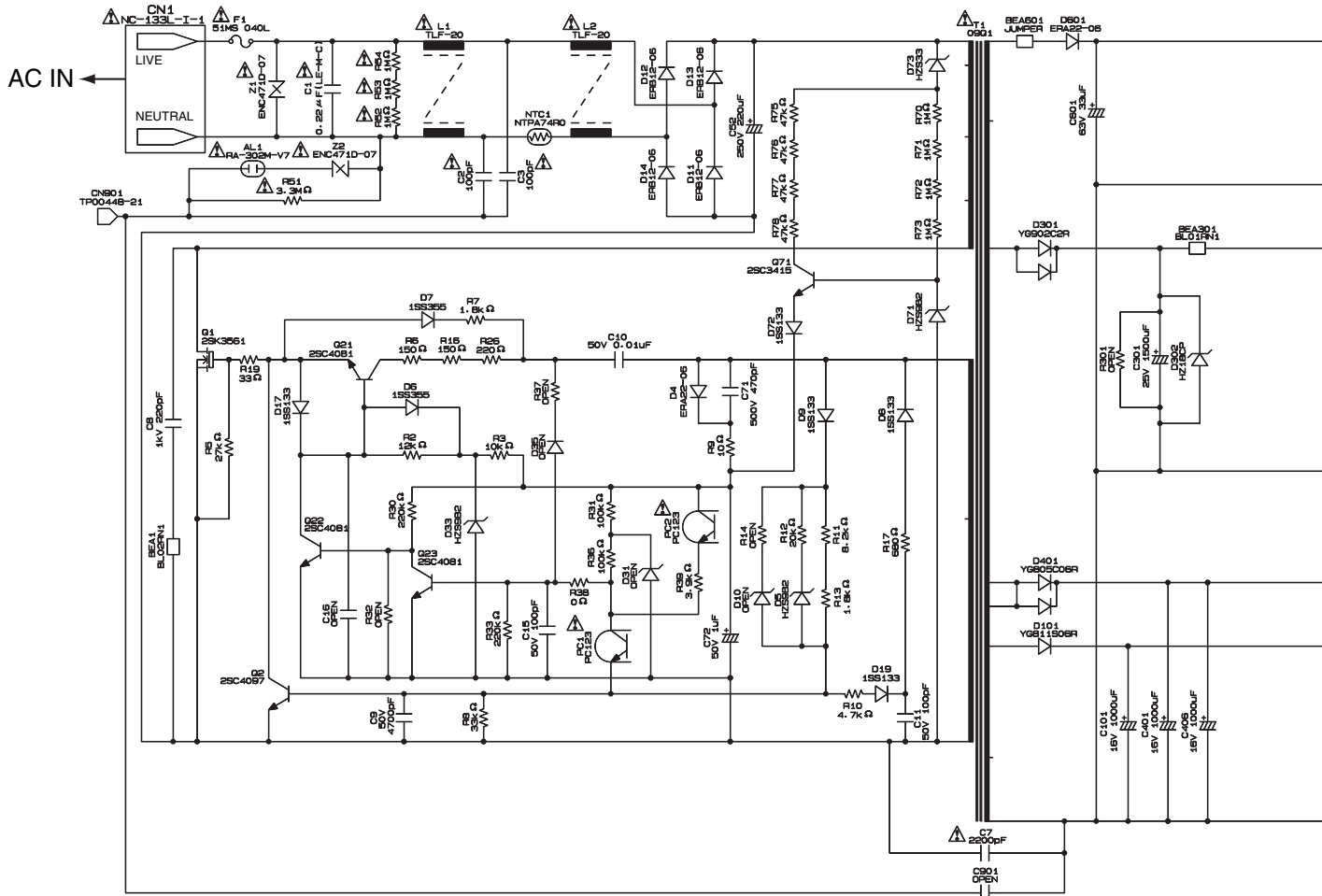
H 5/5

DVR-533H-S



3.14 POWER SUPPLY UNIT

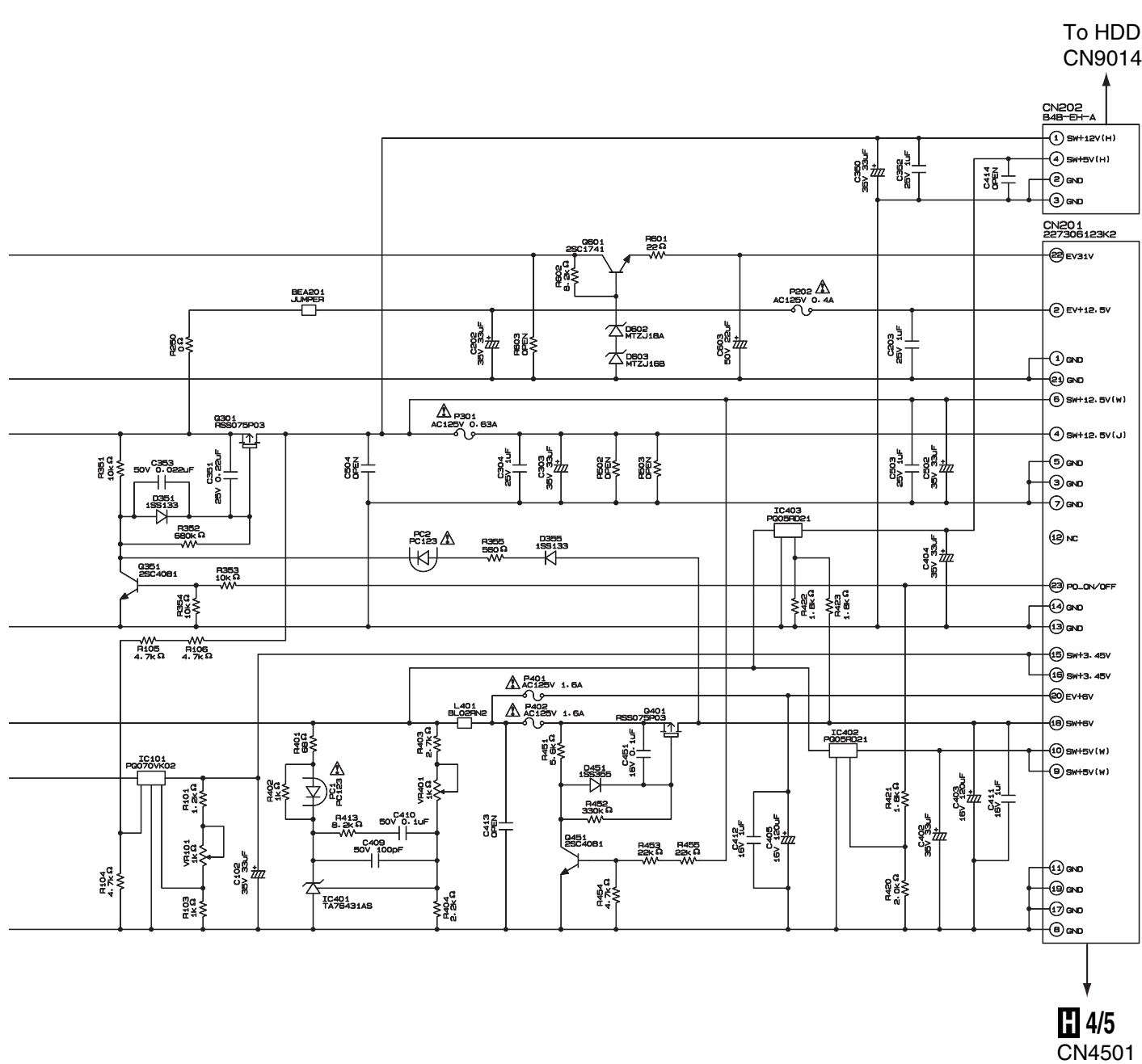
POWER SUPPLY UNIT (VWR1391)



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.400PF002 FOR P202 MFD, BY LITTELFUSE INC.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.630PF002 FOR P301 MFD, BY LITTELFUSE INC.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 49101.6PF002 FOR P401 and P402 MFD, BY LITTELFUSE INC.

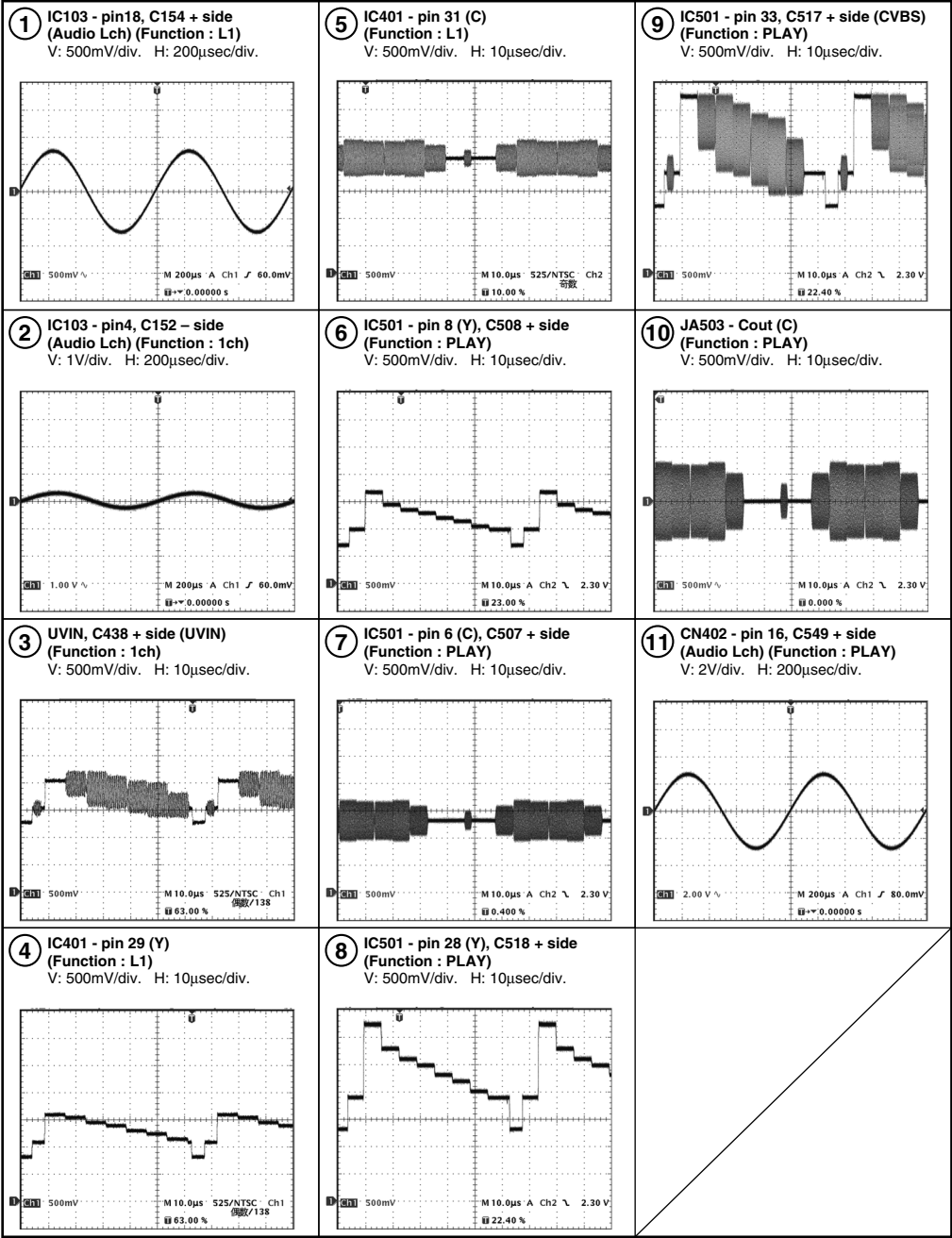


Note : The encircled numbers denote measuring point in the schematic diagram.

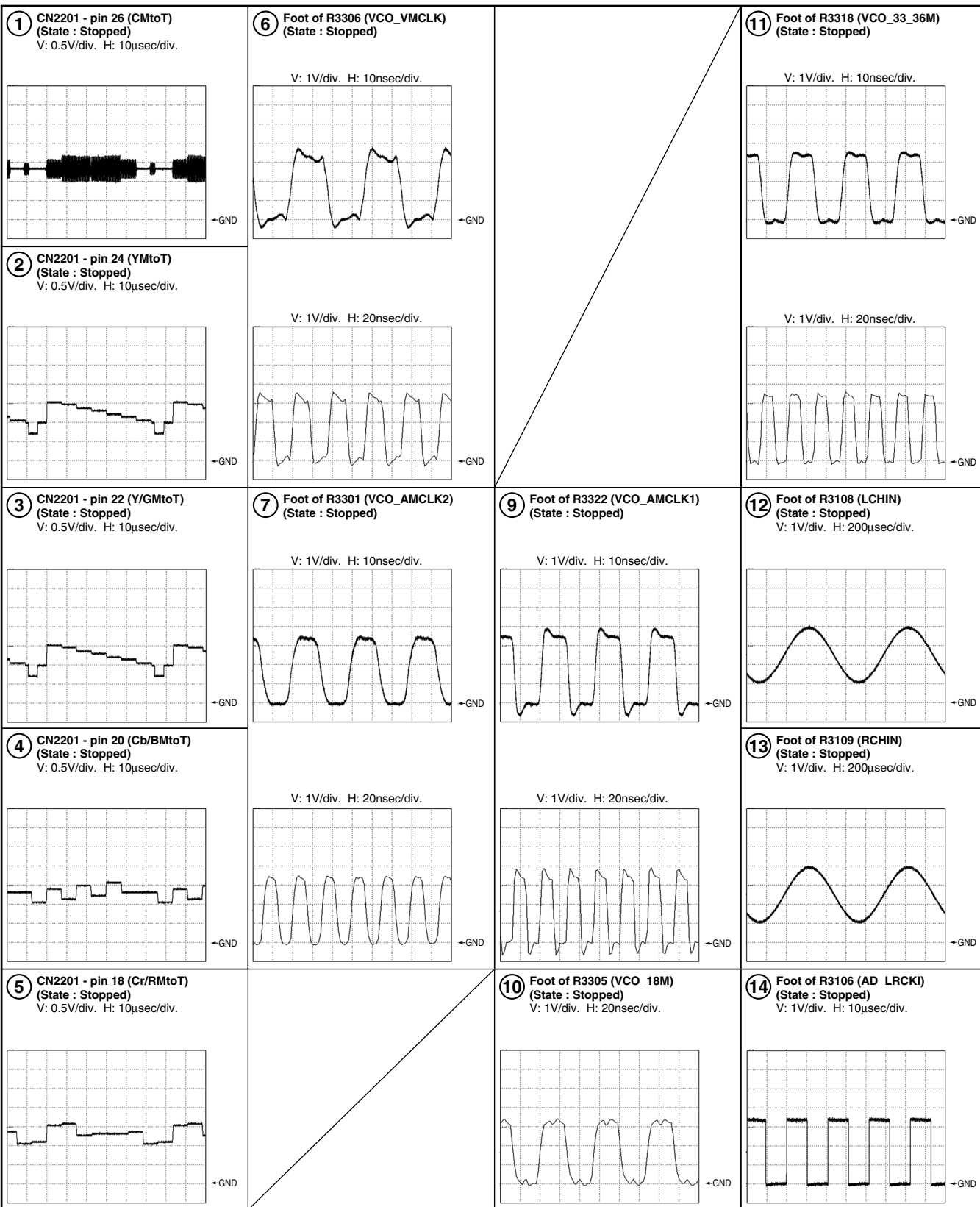
B

JACB ASSY

Measurement condition ;
No.1 : 1kHz, 2Vrms
No.2 : 1kHz, MONO, 60% modulation
No.3 - 5 : 75% Color-bar, (75/0/75/0)
No.6-10 : 75% Color-Bar, AXP disc 1-24 (10/0/75/0)
No.11 : 1kHz, 2Vrms, AXP disc 1-1



H MAIN ASSY



A

H MAIN ASSY

B

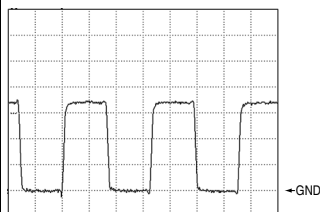
C

D

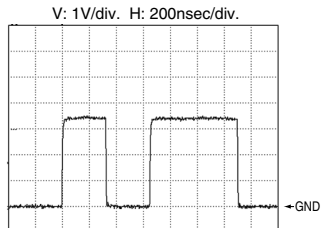
E

F

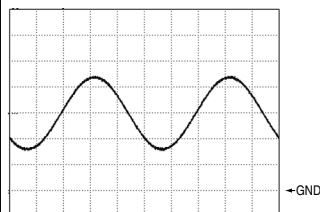
15 Foot of R3104 (AD_BCKI)
(State : Stopped)
V: 1V/div. H: 100nsec/div.



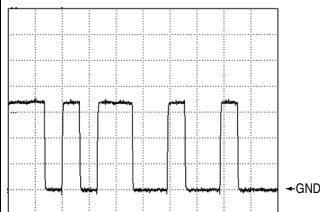
18 Foot of R3228 (DA_ADATAO)
(State : Stopped)
V: 1V/div. H: 200nsec/div.



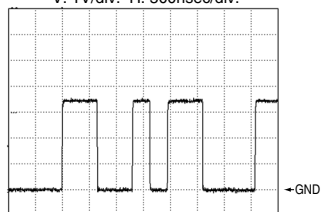
21 IC3202 - pin 1 (RCHOUT)
(State : Stopped)
V: 2V/div. H: 200μsec/div.



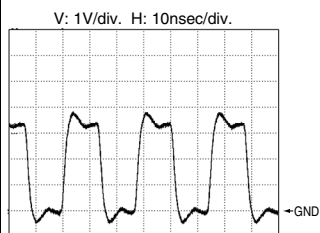
16 Foot of R3107 (AD_ADATAI)
(State : Stopped)
V: 1V/div. H: 500nsec/div.



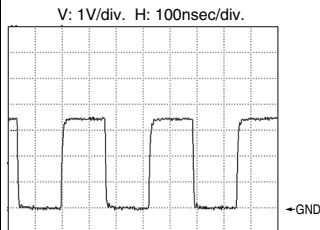
V: 1V/div. H: 500nsec/div.



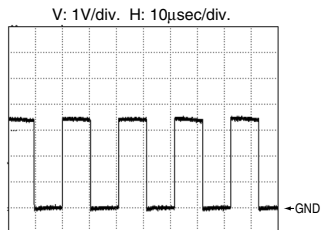
22 IC3201 - pin 16 (DA_33_36M)
(State : Stopped)
V: 1V/div. H: 10nsec/div.



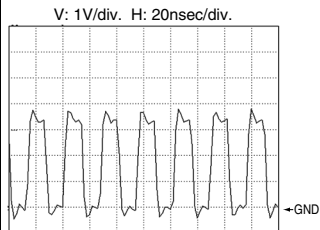
17 Foot of R3227 (DA_BCKO)
(State : Stopped)
V: 1V/div. H: 100nsec/div.



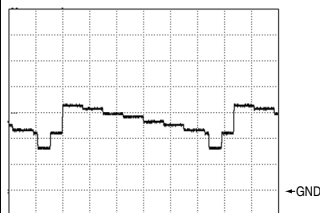
19 Foot of R3230 (DA_LRCKO)
(State : Stopped)
V: 1V/div. H: 10μsec/div.



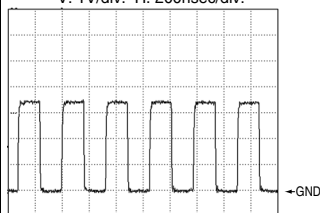
V: 1V/div. H: 20nsec/div.



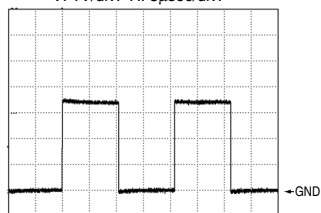
23 Foot of C4290 (CVBSIN)
(State : Stopped)
V: 0.5V/div. H: 10μsec/div.



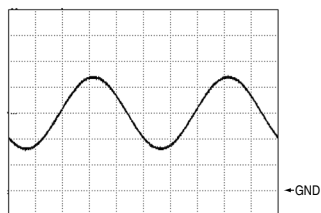
V: 1V/div. H: 200nsec/div.



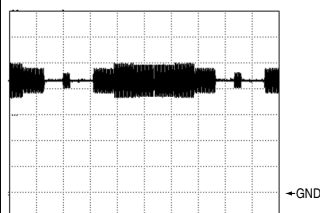
V: 1V/div. H: 5μsec/div.



20 IC3202 - pin 7 (LCHOUT)
(State : Stopped)
V: 2V/div. H: 200μsec/div.



24 Foot of C4278 (CCRIN)
(State : Stopped)
V: 0.5V/div. H: 10μsec/div.



5 6 7 8

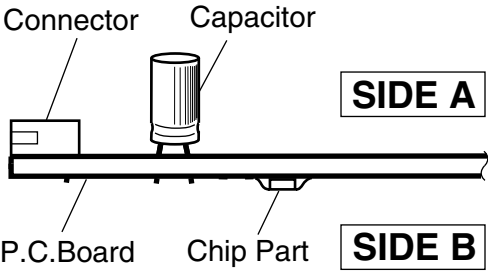
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

- 1. Part numbers in PCB diagrams match those in the schematic diagrams.
- 2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

- 3. The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.
- 4. View point of PCB diagrams.



4.1 TUNB ASSY

SIDE A

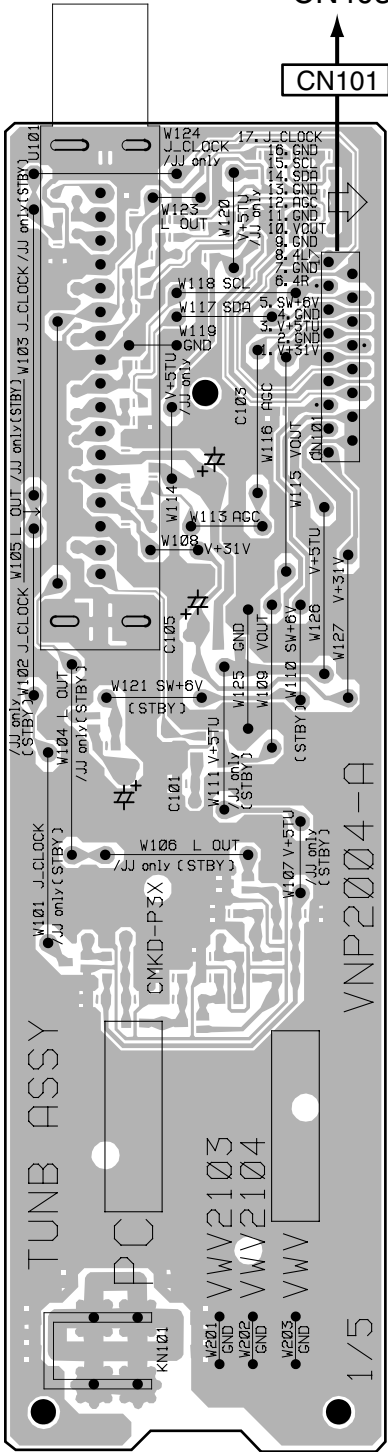
SIDE A

A TUNB ASSY

B

CN403

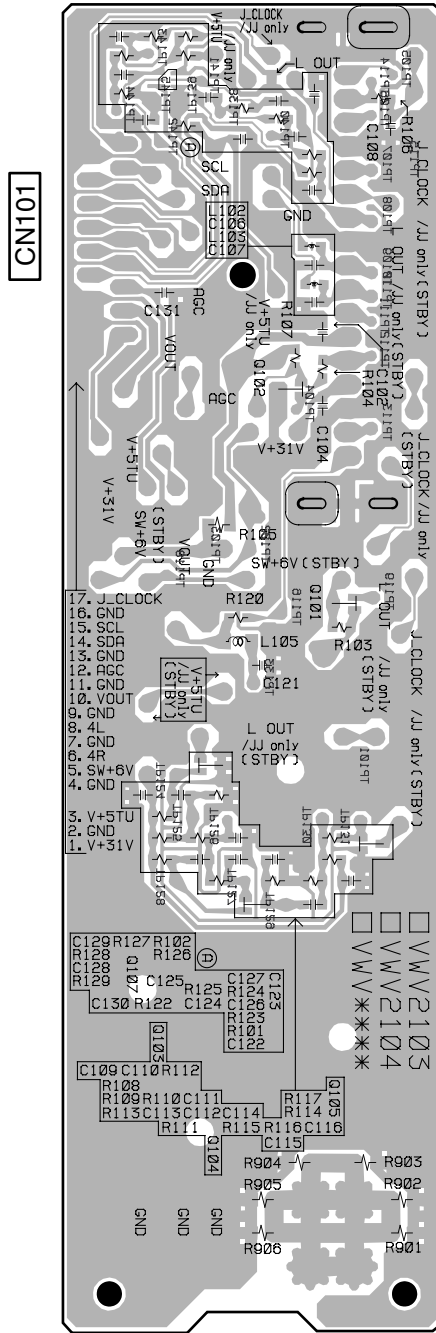
CN101



SIDE B

SIDE B

A TUNB ASSY



(VNP2004-A)

IC	
Q	Q
Q103	Q105
Q104	Q101
Q102	
Q107	

A

A

4

A



48

A

C CN301



B

C

D

F

F

B C

SIDE B

A

B

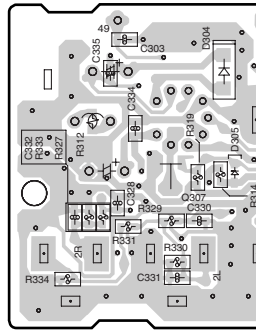
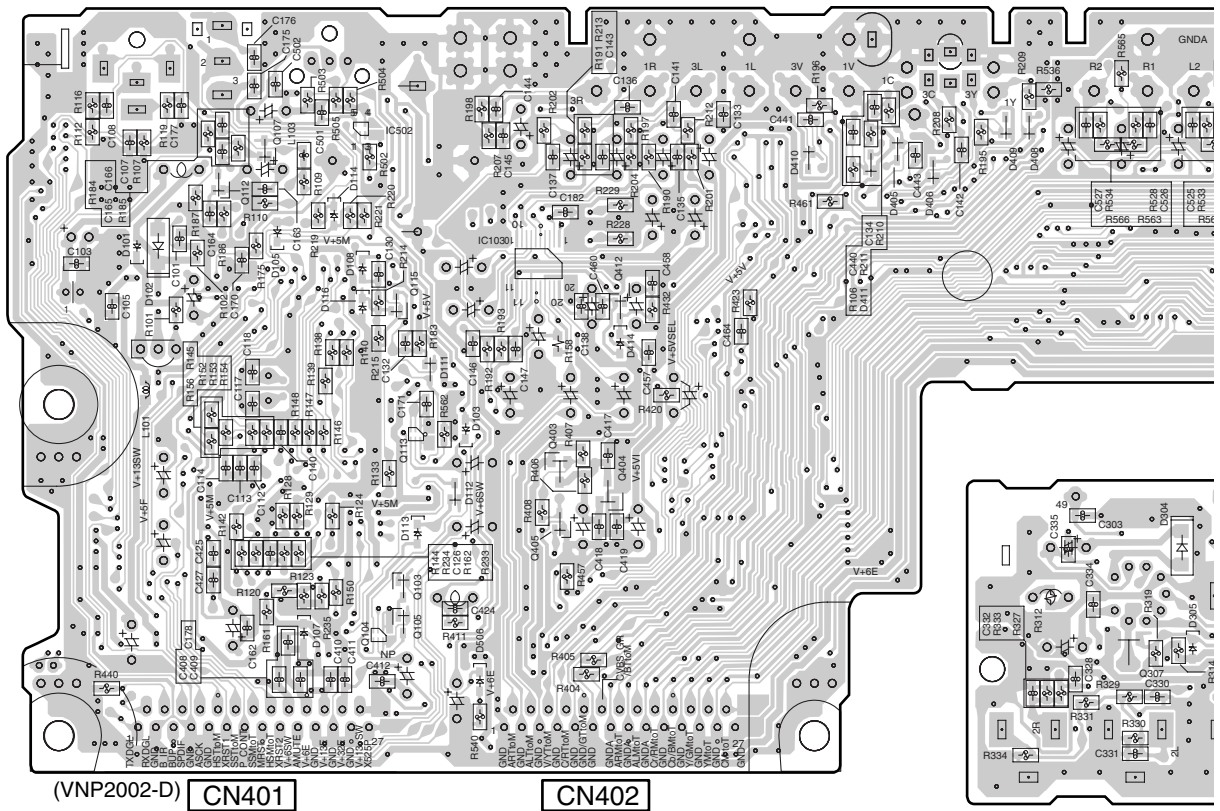
C

D

E

F

B JACB ASSY



C FLJB ASSY

B C

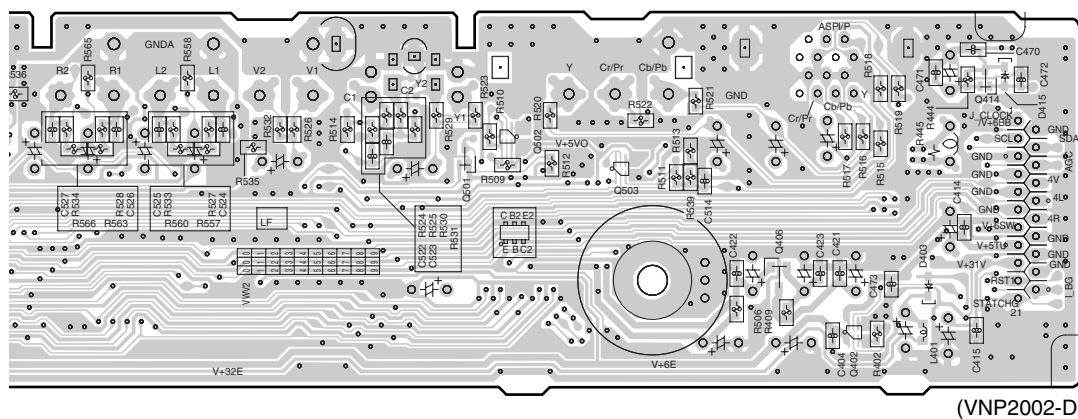
SIDE B

A

B

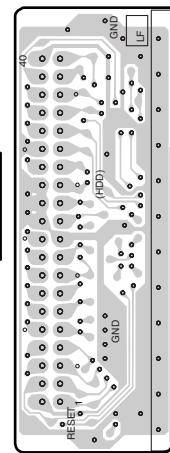
E ATAB ASSY

C

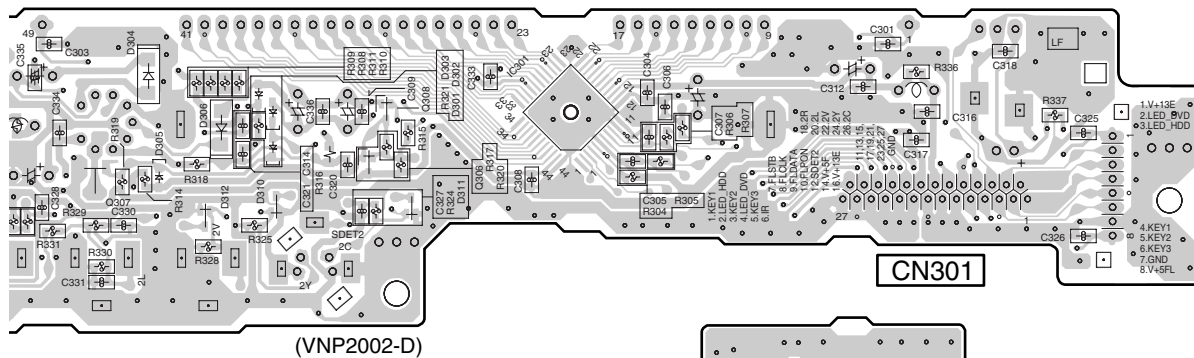


CN401

CN12

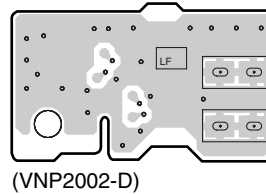


D



CN301

LJB ASSY



D DVJB ASSY

E

F

BCDE

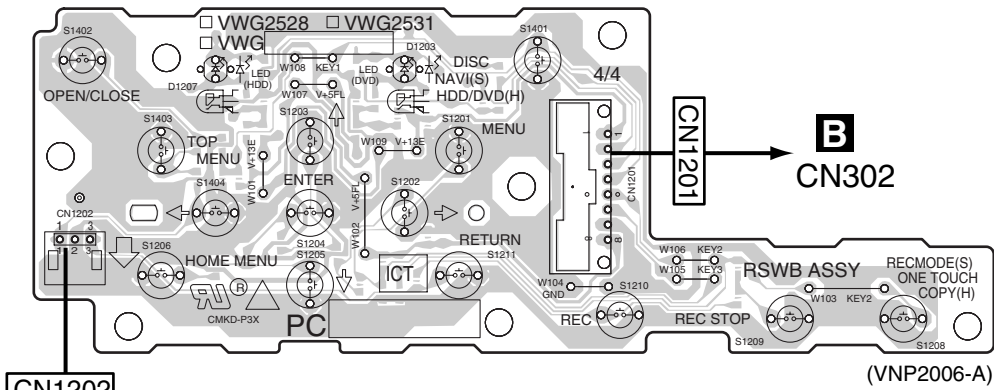
1 2 3 4

4.3 PSWB and RSWB ASSYS

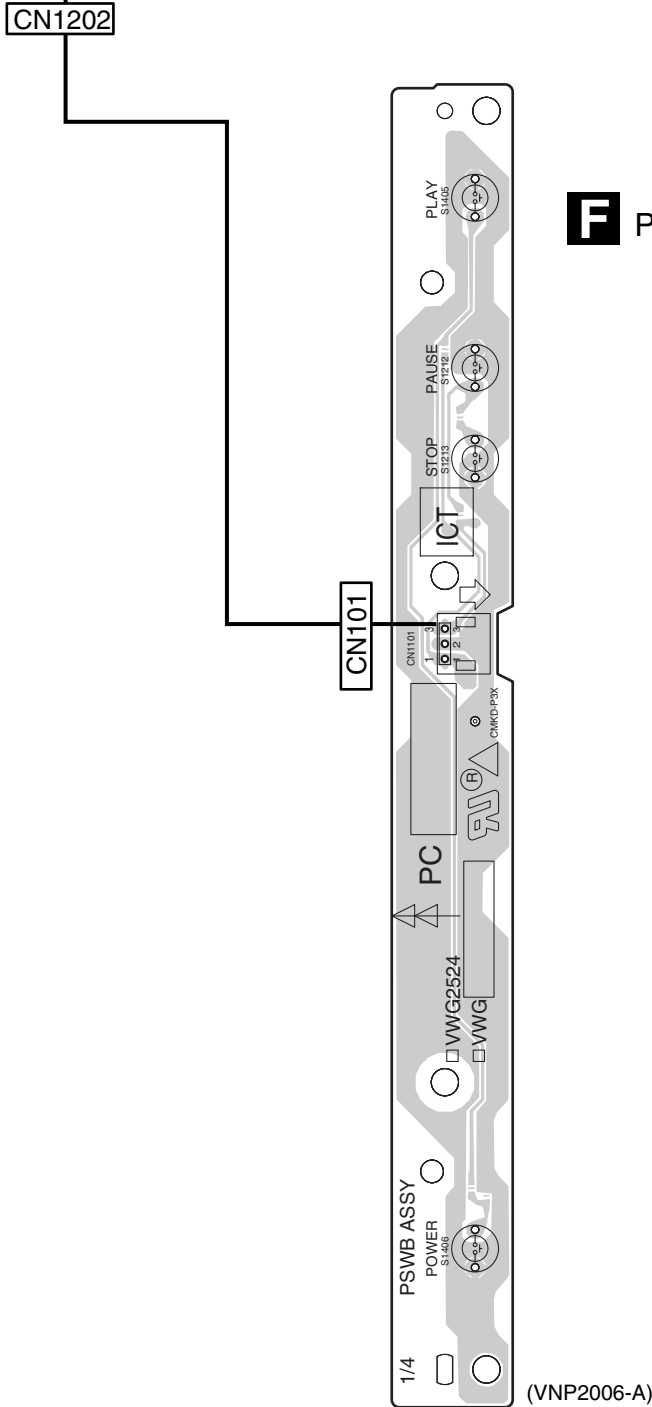
SIDE A

SIDE A

G RSWB ASSY



F PSWB ASSY



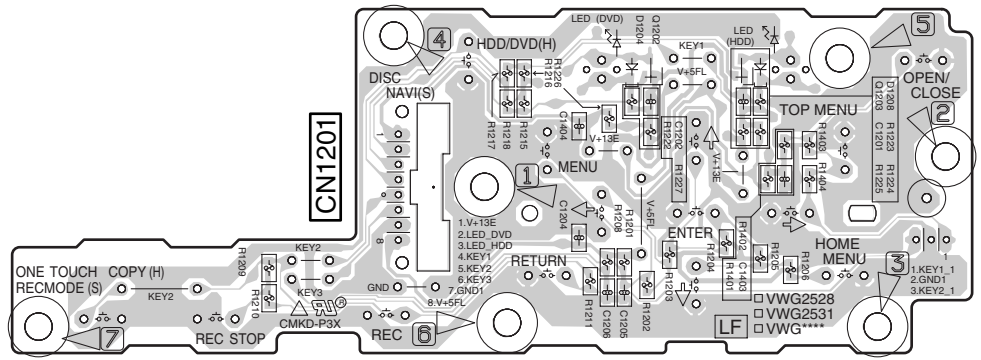
F G

F G

SIDE B

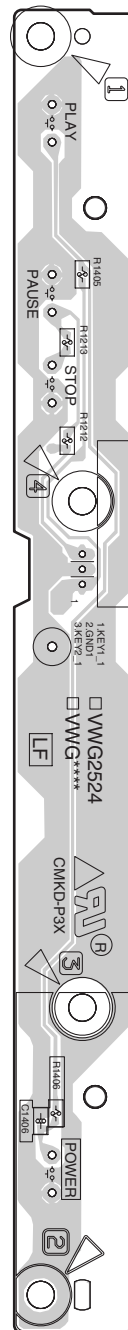
G RSWB ASSY

SIDE B



Q1202
Q1203

F PSWB ASSY



CN101

(VNP2006-A)

F **G**

F **G**

DVR-533H-S

4.4 MAIN ASSY

SIDE A

H MAIN ASSY

J CN201 ← CN4501

IC Q
CN5601
IC3203
IC5621
Q4402
Q4204
IC4281
Q4401
Q4201
Q4602
Q4202
Q4203
IC5101
CN3001
IC4282
IC4201
IC4505
IC4509
Q4501
Q2204
CN3802
IC3707
Q2203
IC3706
IC3512
IC3303
Q2202
CN2201
Q2201
IC4504
IC3301
IC4511
IC3101
IC3102
IC3302
IC3304
CN4502
CN3801

B CN401 ← CN3001

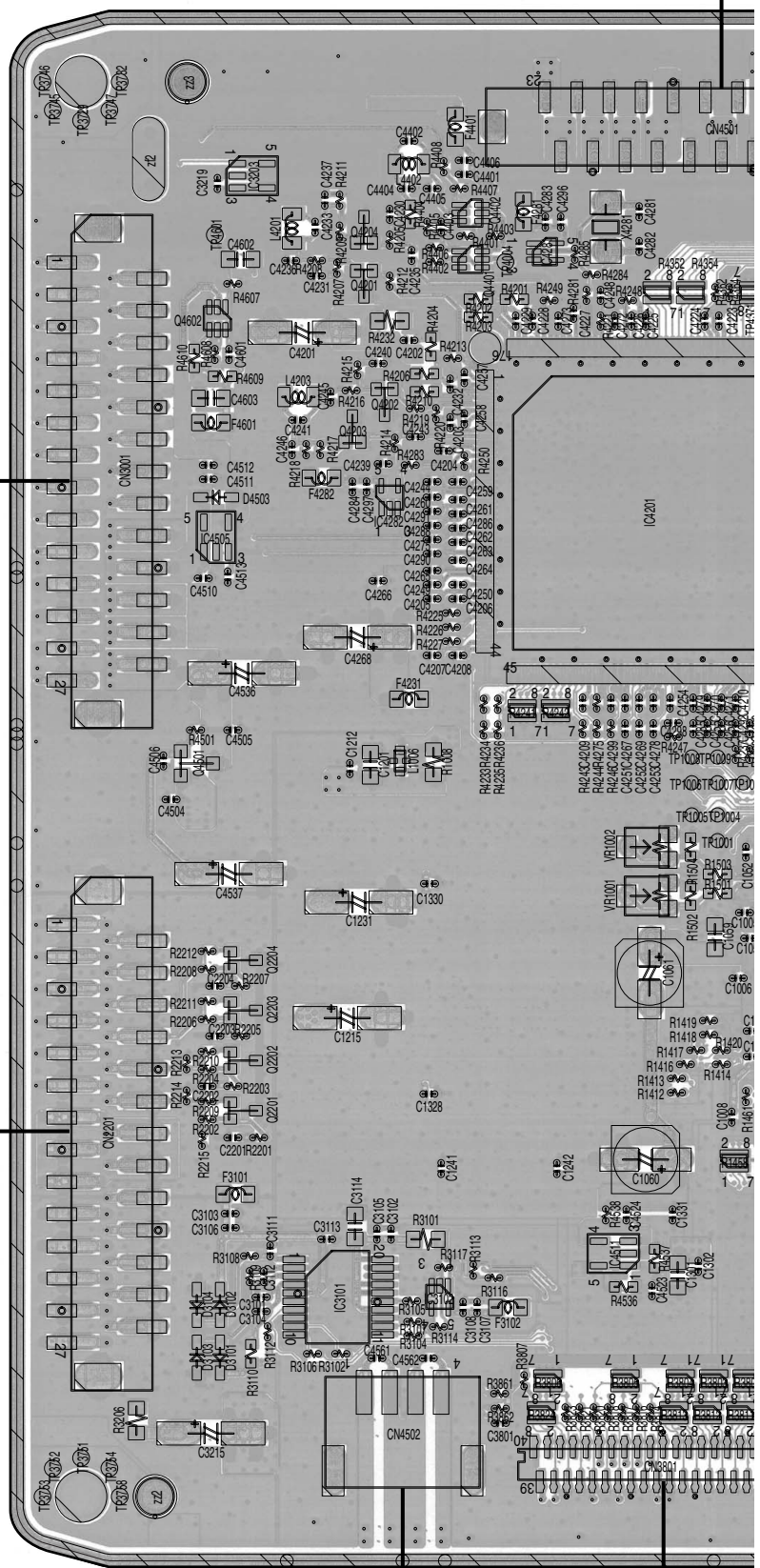
B CN402 ← CN2201

CN4502

CN3801

DRIVE ASSY R9R

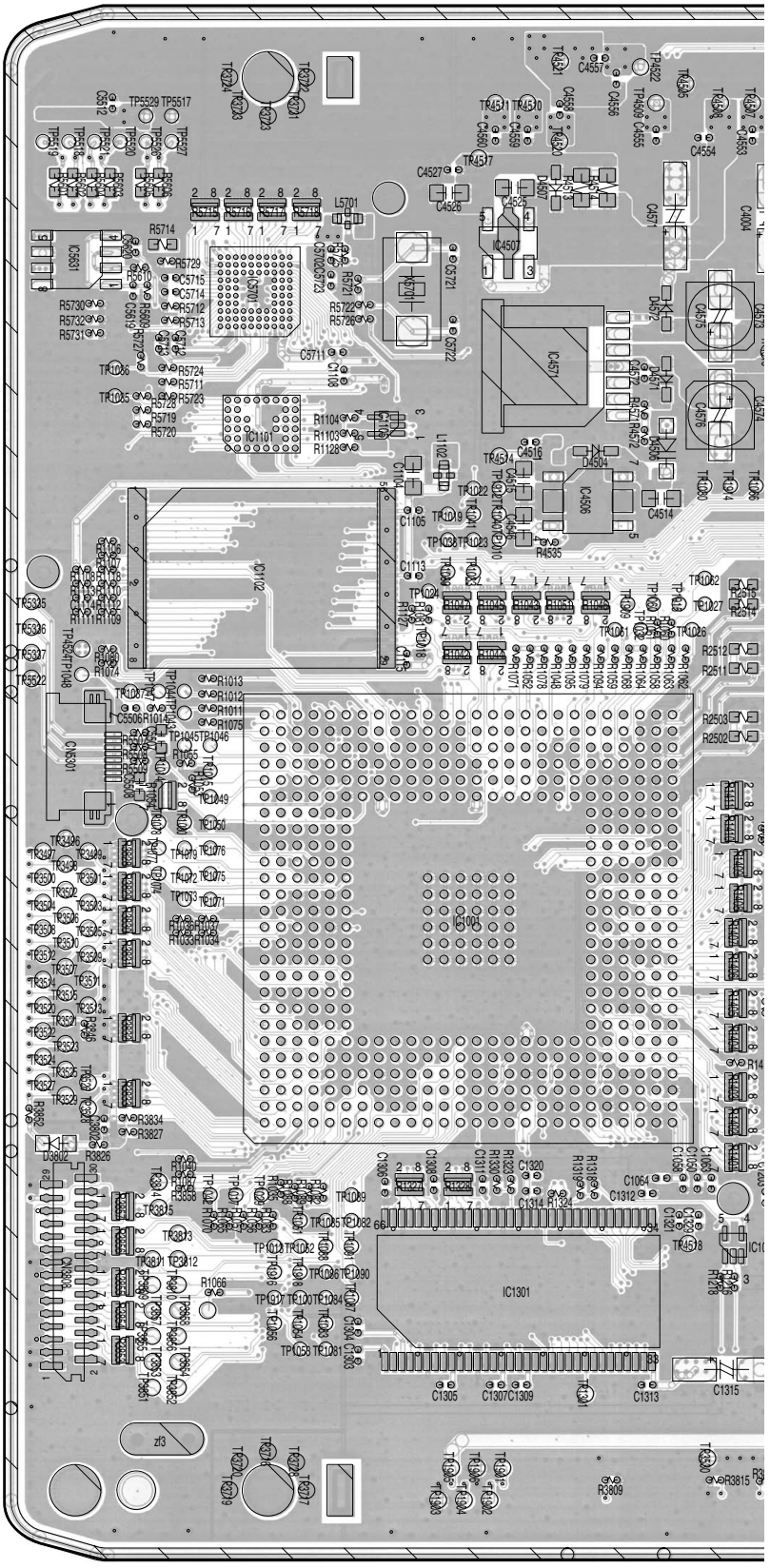
DRIVE AS

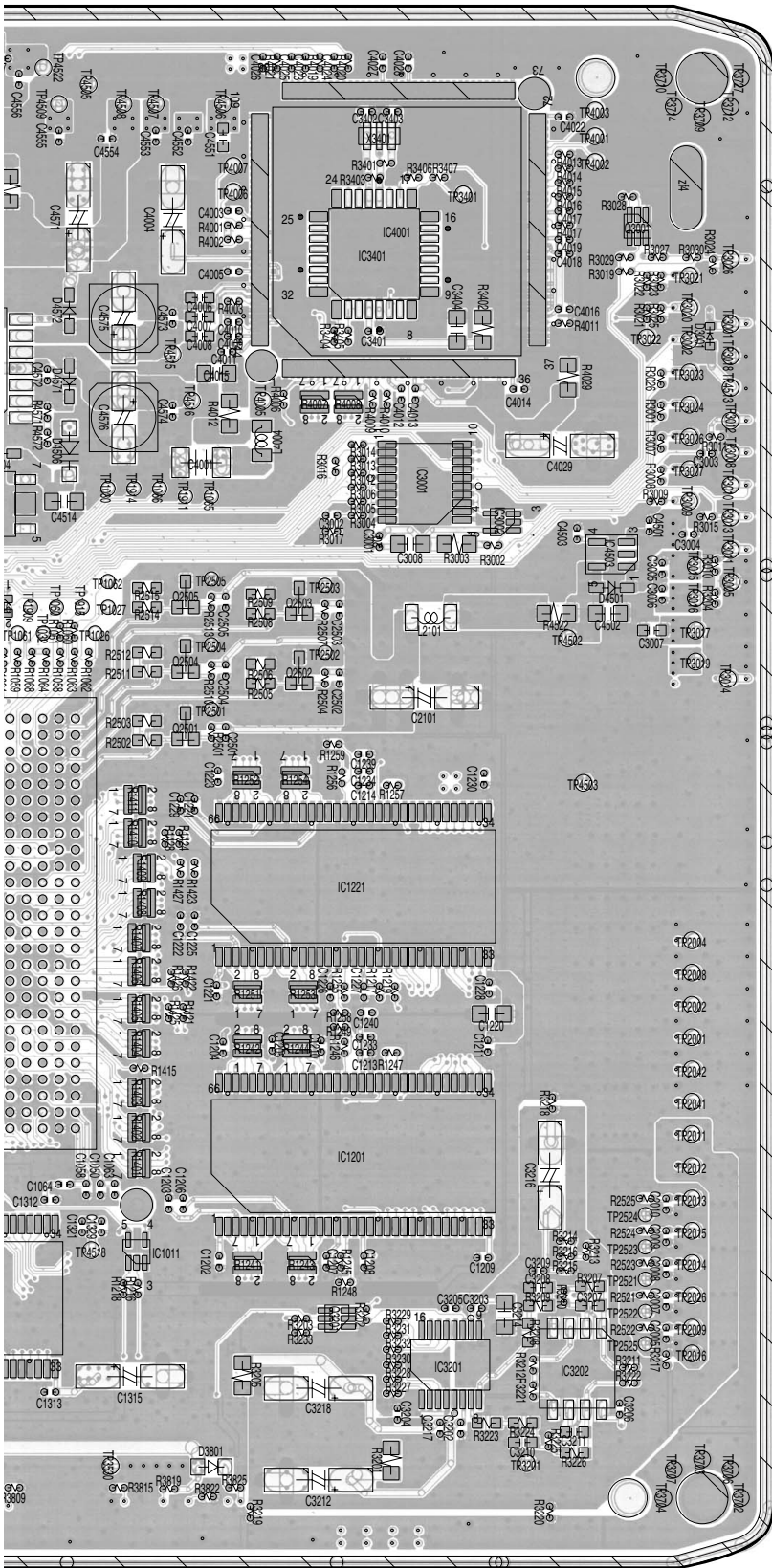


SIDE B

MAIN ASSY

IC	Q
IC4001	Q3001
IC3401	
IC5631	
IC5701	
IC4571	
IC1101	
IC3001	
IC4506	
IC3002	
IC4503	
IC1102	Q2505 Q2503
	Q2504 Q2502
	Q2501
IC1221	
IC1001	
IC1201	
IC1011	
IC1301	Q3201
IC3201	
IC3202	





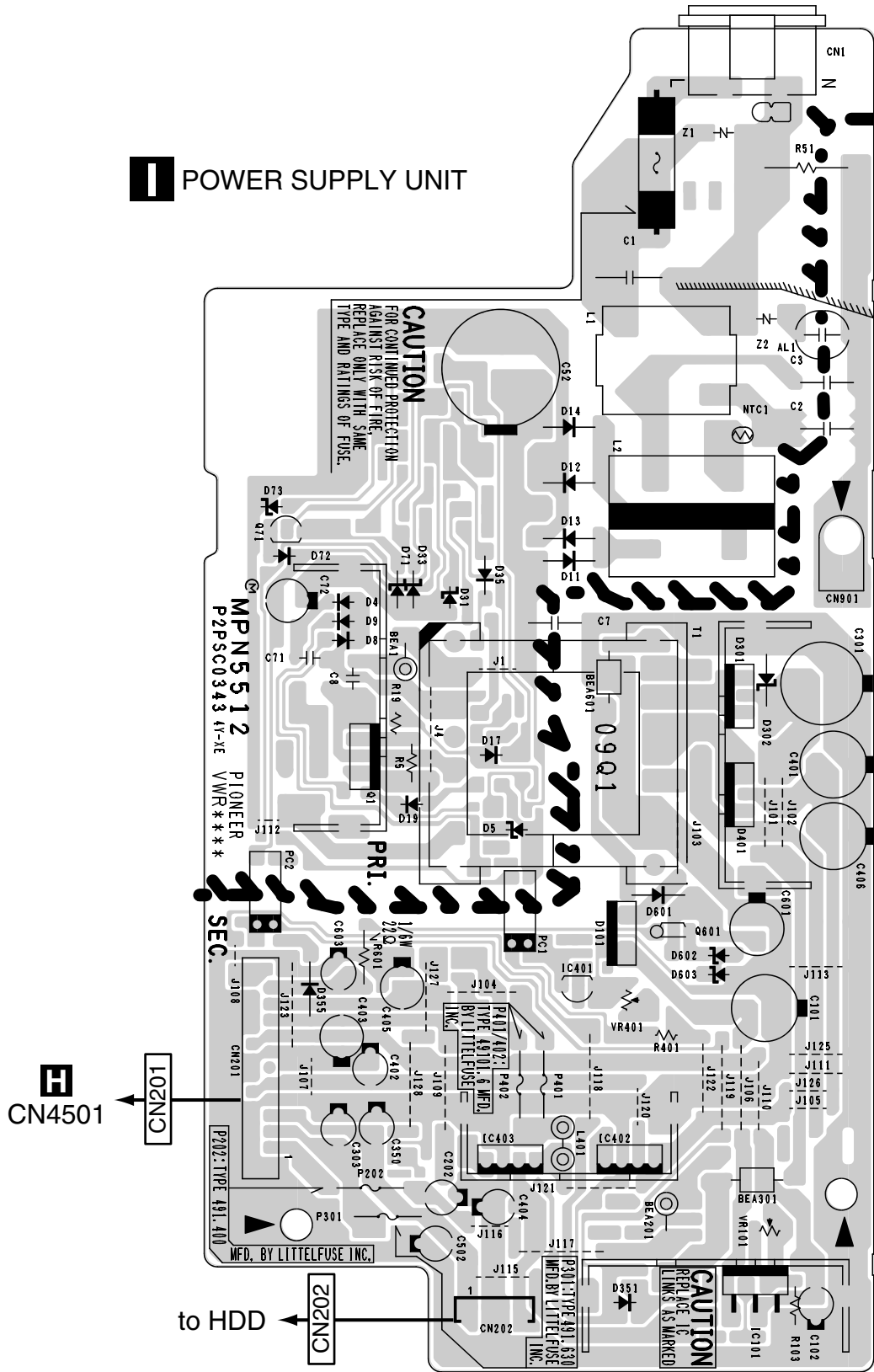
(VNP2001-D)

4.5 POWER SUPPLY UNIT

SIDE A

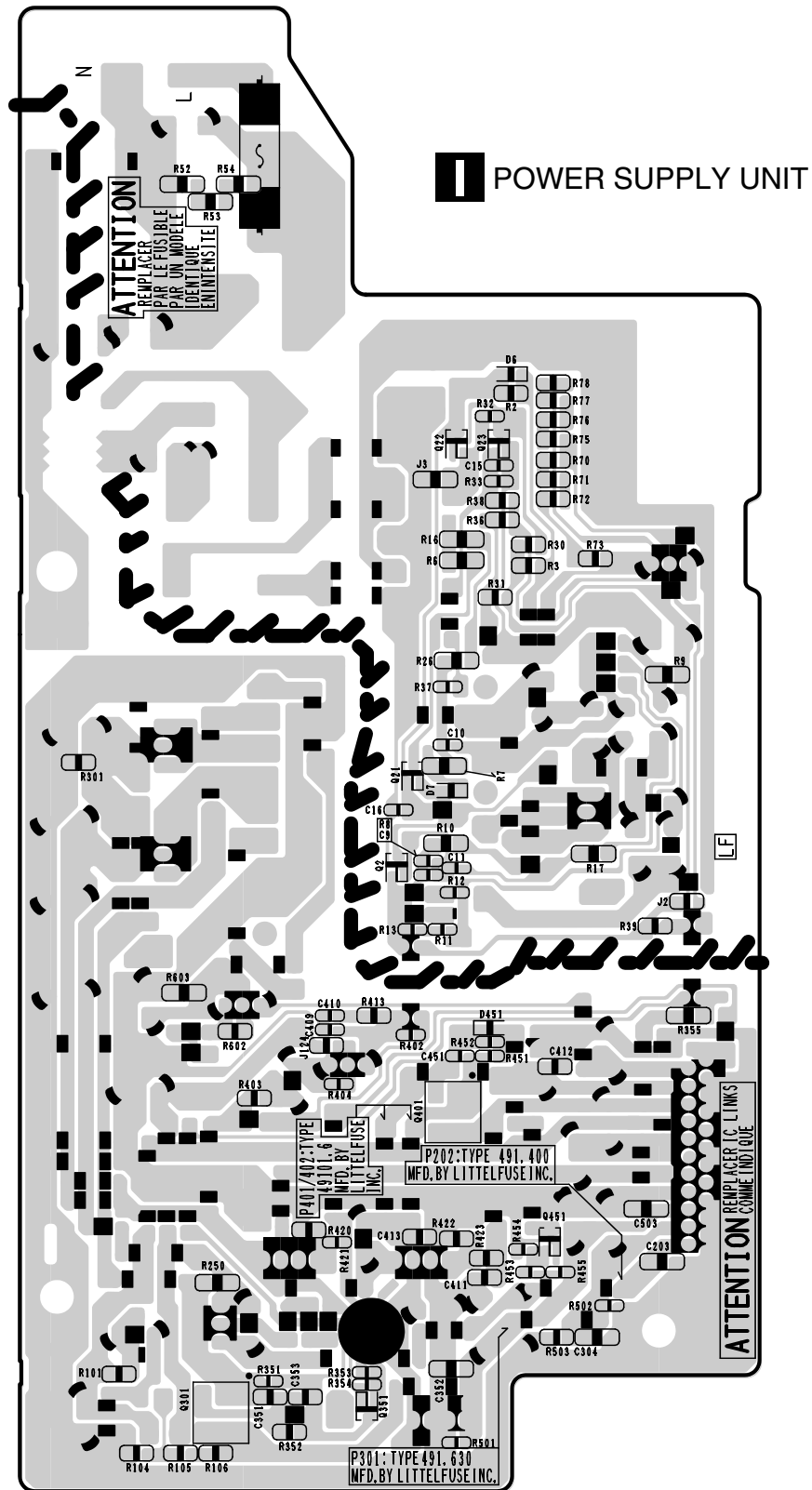
SIDE A

POWER SUPPLY UNIT



SIDE B

SIDE B



1234

5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
●The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.
●When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 x 10¹ → 561 RD1/4PU 5 6 1 J
47k Ω → 47 x 10³ → 473 RD1/4PU 4 7 3 J
0.5 Ω → R50 RN2H R 5 0 K
1 Ω → 1R0 RS1P 1 R 0 K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 x 10¹ → 5621 RN1/4PC 5 6 2 1 F

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	DVR-533H-S DVR-633H-S	DVR-531H-S
NSP	1..TUNB ASSY (for Service)	VXX3024	VXX3024
	1..JAFB ASSY (for Service)	VXX3001	VXX3002
	2..JAFB ASSY	VWM2311	VWM2312
	3..DVJB ASSY	VWG2523	Not used
	3..FLJB ASSY	VWG2536	VWG2536
	3..JACB ASSY	VWV2111	VWV2112
	3..ATAB ASSY	VWV2123	VWV2123
NSP	1..KEYB ASSY (for Service)	VXX3030	VXX3030
	2..KEYB ASSY	VWM2330	VWM2330
	3..PSWB ASSY	VWG2424	VWG2524
	3..RSWB ASSY	VWG2528	VWG2528
⚠	1..MAIN ASSY (for Service)	VXX2993	VXX2994
	1..POWER SUPPLY UNIT	VWR1391	VWR1391

B JACB ASSY

VWV2111 and VWV2112 are constructed the same except for the following :

Mark	Symbol and Description	VWV2111	VWV2112
	R170	Not used	RS1/16S393J
	R172	RS1/16S0R0J	RS1/16S682J

Mark No.	Description	Part No.	Mark No.	Description	Part No.
A	TUNB ASSY SEMICONDUCTORS	Q102	B	JACB ASSY(533H/633H) SEMICONDUCTORS	IC103
E	COILS AND FILTERS	L102, L103			BD3823FV
	CAPACITORS	C106, C107			BD4846G
	RESISTORS	R105			LA73031V
F	OTHERS	U101			LA73054
		KN101			PMC002A8
		CN101			2SA1036K
					2SA1576A
					2SB1238X
					2SC2411K
					2SC4081
					DTA124EUA
					DTC124EUA
					HN1C03FU
					UMD2N
					UMF21N
					UMF23N
					1SR154-400

Mark No. Description**Part No.**

D105
D107, D108, D114, D116, D403
D414, D506, D507, D509

1SS352
1SS355
1SS355

D508
D404-D412

UDZS5R1(B)
UMZ6R8N

COILS AND FILTERS

L401
L101
L405
L102
L103

CTF1399
LCYA100J2520
LCYA101J2520
LTA102J
VTL1081

CAPACITORS

C118
C108, C164-C166, C177
C117
C401
C102

CCSRCH100D50
CCSRCH101J50
CCSRCH150J50
CCSRCH181J50
CCSRCH221J50

C140
C427
C175
C153, C154, C156
C155, C431

CCSRCH331J50
CCSRCH471J50
CCSRCH681J50
CEAL100M50
CEAL101M10

C104
C432
C167
C129
C128

CEAL101M16
CEAL101M6R3
CEAL220M6R3
CEAL221M10
CEAL2R2M50

C148, C149, C151, C152
C157-C160, C405, C407
C124, C403, C434, C436, C503
C515, C516
C150, C459, C547

CEAT100M50
CEAT100M50
CEAT101M10
CEAT101M10
CEAT101M16

C435
C474, C517-C519
C548
C106
C452, C520, C521

CEAT101M6R3
CEAT102M6R3
CEAT221M6R3
CEAT471M16
CEAT471M6R3

C134, C142, C462
C438-C447, C507-C509
C511, C512
C130
C103, C105, C109-C111, C116

CKSRYB103K50
CKSRYB104K16
CKSRYB104K16
CKSRYB105K6R3
CKSRYF104Z25

C119, C125, C132, C138, C139
C163, C168-C170, C176, C178
C181, C182, C408-C410, C412
C414, C417-C419, C421-C423
C450, C453, C455-C458, C460

CKSRYF104Z25
CKSRYF104Z25
CKSRYF104Z25
CKSRYF104Z25
CKSRYF104Z25

C502, C504-C506, C510
C513, C514, C522, C523
C411, C415
C425
C549, C550 (47/16)

CKSRYF104Z25
CKSRYF104Z25
CKSRYF104Z50
CKSRYF105Z10
VCH1241

RESISTORS

R445
R446, R447
R158
R448
R195, R196, R208-R211

RS1/10S0R0J
RS1/10S120J
RS1/10S330J
RS1/10S8R2J
RS1/16S75R0F

Mark No. Description**Part No.**

R435-R437, R520-R523
R525, R526, R529, R530, R532
Other Resistors

RS1/16S75R0F
RS1/16S75R0F
RS1/16S###J

OTHERS

X101 CERAMIC (15MHz)
X102 CRYSTAL (32.768kHz)
JA101 MINI JACK(4P)
CN103 CONNECTOR POST
JA102 JACK

CSS1666
VSS1197
AKN1073
B2B-PH-K
RKN1004

BT101 LITHIUM BATTERY
JA103 JACK
JA503 JACK
JA502 3P PIN JACK
CN102 9P CONNECTOR

VEM1033
VKB1183
VKB1184
VKB1222
VKN1413

CN101 17P SOCKET
CN401, CN402 CONNECTOR
JA501 OPT. LINK OUT 12MB/S
KN401 SCREW PLATE
KN403-KN405 WRAPPING TERMINAL

VKN1431
VKN2008
VKS1001
VNE1948
VNF1084

CN403 17P PLUG

XKP3068

C FLJB ASSY SEMICONDUCTORS

IC301
Q306
Q308
Q307
D305

PT6315
2SA1576A
2SC4081
2SC5712
1SS355

⚠ D304, D306
D302
D301
D303
D310-D312

RF101L2S
UDZS13(B)
UDZS15(B)
UDZS2R4(B)
UMZ6R8N

COILS AND FILTERS

L301, L303

LAU220J

TRANSFORMERS

⚠ T302

VTT1166

CAPACITORS

C331, C332
C324
C313
C322, C323
C319

CCSRCH471J50
CEAL100M50
CEAL101M10
CEAL101M16
CEAT101M10

C301, C303, C321
C320
C304, C308, C312, C316-C318
C325, C326, C334, C335
C333, C336

CKSRYB103K50
CKSRYB223K50
CKSRYF104Z25
CKSRYF104Z25
CKSRYF104Z50

RESISTORS

R316
Other Resistors

RS1/10S221J
RS1/16S###J

OTHERS

IC302 REMOTE RECEIVER UNIT
V301 FL TUBE
JA302 3PIN JACK(VERTICAL)
JA301 YC CONNECTOR(VERTI)

RPM7140-H4
VAW1085
VKB1189
VKB1190

Mark No. Description Part No.

CN302 8P CONNECTOR VKM1001

A CN301 27P CONNECTOR VKN2014
KN301, KN302 WRAPPING TERMINAL VNF1084
0 FL HOLDER (FE) VNF1130

D DVJB ASSY

OTHERS

JA601 1394-TERMINAL VKN1800
CN601 16P CONNECTOR VKN2013

B E ATAB ASSY

OTHERS

CN12 40P ATA CONECTOR VKN1816
CN11 40P CONNECTOR VKN2009

F PSWB ASSY

SWITCHES AND RELAYS

S1212, S1213, S1405, S1406 VSG1024

RESISTORS

C Other Resistors RS1/16S###J

OTHERS

CN1101 CONNECTOR POST S3B-PH-K

G RSWB ASSY

SEMICONDUCTORS

Q1202, Q1203 DTC124EUA

SWITCHES AND RELAYS

D S1201-S1206, S1208-S1211 VSG1024
S1401-S1404 VSG1024

CAPACITORS

C1201, C1202, C1204-C1206 CKSRYF104Z25
C1403, C1404 CKSRYF104Z25

RESISTORS

Other Resistors RS1/16S###J

OTHERS

E CN1202 CONNECTOR POST S3B-PH-K
D1207 LED(BLUE) SLR-343BBT
D1203 LED(ORANGE) SLR-343DC
CN1201 CONNECTOR VKP2355

H MAIN ASSY (533H/633H_DV Model)

SEMICONDUCTORS

F △IC4571 BA25F18WHFP
IC3203 BD4850G
IC3707 BU4809F
IC3706 BU4828F
IC4201 CM0041BF

IC3301 CY244ZXC-04D
IC1201, IC1221 EDD1216AATA-6B-E
IC1301 K4H511638B-UCB3

Mark No. Description Part No.

△IC4512 NJM2861F33

△IC4503, IC4504 NJM2872F05

IC3303, IC4511 NJU7013F
IC3201 PCM1742KE
IC3101 PCM1802DB1
IC3401 PDF014A
△IC4509 PQ035ZN01ZPH

△IC4506 R1170S331B
IC1001 R8A34011BG
IC3001 TC74LCX541FTS1
IC3304 TC7SAU04FU
IC1011, IC3002 TC7SH08FUS1

IC4281, IC4282 TC7SHU04FUS1
IC3202 UPC4570G2-A
IC5101 UPD72852AGB-8EU-A
IC1102 VYW2309
Q2501-Q2505, Q4202, Q4203 2SA1576A

Q4501 2SC2411K
Q3001 HN1C01FU
Q3201 RN1903
D3101-D3104 1SS355
D4505, D4506 RB160M-40

COILS AND FILTERS

F3101, F3303-F3305, F4231 DTF1069
F4281, F4282, F5101 DTF1069
L1004-L1008, L1102, L5108 DTL1106
L4203 LCYA6R8J2520
L5601, L5604 VTH1043

L2101 VTL1067

CAPACITORS

C3207, C3211 CCSRCH121J50
C3208, C3210 CCSRCH681J50
C5121 CCSSCH100D50
C4281, C4282, C5122 CCSSCH120J50
C4245, C4275 CCSSCH330J50

C4246 CCSSCH680J50
C3303, C3304 CCSSCJ3R0C50
C3215, C3216, C4534, C4536, C4537 CEVW101M16
C2101, C3212, C3218 CEVW101M6R3
C5102 CEVW220M6R3

C1002, C1062, C1231, C1315, C3314 CEVW221M4
C4201, C4220, C4268, C4276, C4571 CEVW221M4
C3318 CEVWNP470M10
C1004, C1036, C1059, C1104, C1201 CKSQYB106K6R3
C1220, C1301, C3008, C3214 CKSQYB106K6R3

C3301, C3302, C3404, C4514, C4515 CKSQYB106K6R3
C4545 CKSQYB106K6R3
C1901, C4502, C4508 CKSQYB225K10
C4525, C4526, C4546 CKSQYB475K6R3
C3007, C4551 CKSRYF104Z50

C1003, C1012, C1020, C1023, C1025 CKSSYB102K50
C1040, C1051, C1207, C1209, C1210 CKSSYB102K50
C1226, C1228, C1229, C1307, C1311 CKSSYB102K50
C1313, C4296, C4297, C4519, C4527 CKSSYB102K50
C1017, C1021, C1034, C1035, C1052 CKSSYB103K16

C1205, C1206, C1224, C1225, C1305 CKSSYB103K16
C1308, C3003, C3311, C3315, C3317 CKSSYB103K16
C4503, C4509 CKSSYB103K16

Mark No.	Description	Part No.
C1513, C1514, C4243 C5105		CKSSYB104K10 CKSSYB271K50
C3204 C1005, C1008-C1010, C1015, C1016 C1019, C1022, C1024, C1026 C1028-C1030, C1032, C1033, C1050 C1053, C1055-C1058, C1063, C1064		CKSSYB331K50 CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16
C1105, C1203, C1211-C1214, C1222 C1230, C1233, C1234, C1239-C1242 C1302, C1304, C1312, C1314 C1320, C1321, C1328-C1331 C2501-C2505, C3004-C3006, C3101		CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16
C3104-C3106, C3113, C3202, C3203 C3206, C3209, C3217, C3309, C3312 C3401, C4244, C4249, C4251-C4256 C4261-C4263, C4265, C4279, C4286 C4291, C4501, C4504-C4507		CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16
C4516, C4517, C4523, C4524 C4552-C4562, C5110-C5112, C5114 C5118, C5127 C1001, C1006, C1007, C1011, C1013 C1018, C1027, C1031, C1113, C1115		CKSSYF104Z16 CKSSYF104Z16 CKSSYF104Z16 VCG1057 VCG1057
C1202, C1204, C1208, C1221, C1223 C1227, C1303, C1306, C1309, C1902 C3001, C3102, C3103, C3219 C3305, C3306, C3316, C3737, C3738 C3801, C3802, C4202-C4219 (1.0 YF)		VCG1057 VCG1057 VCG1057 VCG1057 VCG1057
C4221-C4229, C4232, C4239, C4240 C4248, C4250, C4257-C4260, C4264 C4266, C4267, C4269-C4274 C4283, C4284, C4518, C4520 C4572-C4574, C5101, C5103, C5113		VCG1057 VCG1057 VCG1057 VCG1057 VCG1057
C5119, C5120, C5123-C5126 C3310, C4278, C4290, C4533 (1.0 YB) C4532 (22/6.3) C1215 (150/4) C4548, C4575, C4576 (47/4)		VCG1057 VCG1058 VCG1061 VCH1246 VCH1253
RESISTORS		
R5133, R5134 R1042-R1047, R1051, R1054 R4241, R4242 R3853-R3857, R4252, R4253, R4352 R4354, R4356, R4358, R4360		RAB4CQ0R0J RAB4CQ103J RAB4CQ103J RAB4CQ220J RAB4CQ220J
R3801-R3806, R3828-R3833 R1241-R1244, R1251-R1254 R1325-R1328, R3810-R3813, R3824 R3837-R3840, R3851 R1401-R1411, R1451-R1454		RAB4CQ223J RAB4CQ330J RAB4CQ330J RAB4CQ330J RAB4CQ560J
R1455-R1458 R3208, R3223 R3314, R3315, R4536, R4537 R3207, R3226 R5103		RAB4CQ820J RN1/16SC56R0D RN1/16SE1003D RN1/16SE1502D RN1/16SE5101D
R3209, R3224 R5108 R3003, R3101, R3201, R3205, R3206 R3402, R4224, R4230, R4232 R4513, R4514, R4522		RN1/16SE8201D RN1/16SE9101D RS1/10S0R0J RS1/10S0R0J RS1/10S0R0J

Mark No.	Description	Part No.
R3110, R4532 R4202, R4206, R4531 R2502, R2505, R2508, R2511, R2514 R4201, R4204 R4203, R4210		RS1/16S1001F RS1/16S1101F RS1/16S1800F RS1/16S2201F RS1/16S2701F
R1501, R1503 R4534 R5104-R5107 Other Resistors		RS1/16S3901F RS1/16S5600F RS1/16S56R0D RS1/16S###J

OTHERS

X3401 CERAMIC (16MHz)	CSS1616
X3301 CRYSTAL (27.000MHz)	VSS1204
X4281 CRYSTAL (27.000MHz)	VSS1205
X5101 CRYSTAL (24.576MHz)	VSS1206
CN4502 CONNECTOR	AKM1290
CN1901 7P CONNECTOR	VKN1411
CN3801, CN3802 FFC CONNECTOR	VKN1794
CN3808 30P CONNECTOR	VKN1892
CN5601 CONNECTOR	VKN2010
CN2201, CN3001 CONNECTOR	VKN2011
CN4501 CONNECTOR	VKN2012

H MAIN ASSY (531H_Non DV Model)

SEMICONDUCTORS

⚠ IC4571 IC3203 IC3707 IC3706 IC4201	BA25F18WHFP BD4850G BU4809F BU4828F CM0041BF
IC3301 IC1201, IC1221 IC1301 ⚠ IC4512 ⚠ IC4503, IC4504	CY244ZXC-04D EDD1216AATA-6B-E K4H511638B-UCB3 NJM2861F33 NJM2872F05
IC3303, IC4511 IC3201 IC3101 IC3401 ⚠ IC4509	NJU7013F PCM1742KE PCM1802DB1 PDF014A PQ035ZN01ZPH
⚠ IC4506 IC1001 IC3001 IC3304 IC1011, IC3002	R1170S331B R8A34011BG TC74LCX541FTS1 TC7SAU04FU TC7SH08FUS1
IC4281, IC4282 IC3202 IC1102 Q2501-Q2505, Q4202, Q4203 Q4501	TC7SHU04FUS1 UPC4570G2-A VYW2309 2SA1576A 2SC2411K
Q3001 Q3201 D3101-D3104 D4505, D4506	HN1C01FU RN1903 1SS355 RB160M-40

COILS AND FILTERS

F3101, F3303-F3305, F4231 F4281, F4282 L1004-L1008, L1102 L4203	DTF1069 DTF1069 DTL1106 LCYA6R8J2520
--------------------------------------------------------------------------	-----------------------------------------------

Mark No.	Description	Part No.
L2101		VTL1067

Mark No.	Description	Part No.
C3310, C4278, C4290, C4533 (1.0 YB)		VCG1058
C4532 (22/6.3)		VCG1061
C1215 (150/4)		VCH1246
C4548, C4575, C4576 (47/4)		VCH1253

RESISTORS

R1042-R1047, R1051, R1054	RAB4CQ103J
R4241, R4242, R5733, R5734	RAB4CQ103J
R3853-R3857, R4252, R4253, R4352	RAB4CQ220J
R4354, R4356, R4358, R4360	RAB4CQ220J
R3801-R3806, R3828-R3833	RAB4CQ223J
R1241-R1244, R1251-R1254	RAB4CQ330J
R1325-R1328, R3810-R3813, R3824	RAB4CQ330J
R3837-R3840, R3851	RAB4CQ330J
R1401-R1411, R1451-R1454	RAB4CQ560J
R1455-R1458	RAB4CQ820J
R3208, R3223	RN1/16SC56R0D
R3314, R3315, R4536, R4537	RN1/16SE1003D
R3207, R3226	RN1/16SE1502D
R3209, R3224	RN1/16SE8201D
R3003, R3101, R3201, R3205, R3206	RS1/10S0R0J
R3402, R4224, R4230, R4232	RS1/10S0R0J
R4513, R4514, R4522	RS1/10S0R0J
R3110, R4532	RS1/16S1001F
R4202, R4206, R4531	RS1/16S1101F
R2502, R2505, R2508, R2511, R2514	RS1/16S1800F
R4201, R4204	RS1/16S2201F
R4203, R4210	RS1/16S2701F
R1501, R1503	RS1/16S3901F
R4534	RS1/16S5600F
Other Resistors	RS1/16S###J

OTHERS

X3401 CERAMIC (16MHz)	CSS1616
X3301 CRYSTAL (27.000MHz)	VSS1204
X4281 CRYSTAL (27.000MHz)	VSS1205
CN4502 CONNECTOR	AKM1290
CN1901 7P CONNECTOR	VKN1411
CN3801, CN3802 FFC CONNECTOR	VKN1794
CN3808 30P CONNECTOR	VKN1892
CN2201, CN3001 CONNECTOR	VKN2011
CN4501 CONNECTOR	VKN2012

POWER SUPPLY UNIT

OTHERS

△ IC202 PROTECTOR (400mA)	AEK7054
△ IC301 PROTECTOR (630mA)	AEK7061
△ IC401, IC402 PROTECTOR (1.6A)	AEK7066

6. ADJUSTMENT

There is no information to be shown in this chapter.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

◆ Jigs and Tools to be used

Remote control unit for serving (GGF1381)
 DVD Recorder Data Disc (GGV1239) (When repairing until June 2005, use the Disc GGV1179.).
 Download disc
 Test disc (GGV1025)
 DVD-RW (Commercial goods)

◆ Service Mode List

1. Setting type

Item	When to perform
7.1.1 Model setting	• When replacing MAIN ASSY or JACB ASSY.
7.1.2 CPRM ID number and data	• When "CPRM ERROR" is displayed on the display screen. • After the MAIN ASSY, DRIVE ASSY or HDD replaced.
7.1.3 Firmware downloading method	• After model setting (After replacing MAIN ASSY, DRIVE ASSY, JACB ASSY). • After the HDD is replaced. • When NG is displayed for the version information in Service mode.
7.1.4 Video Adjustment for Specific Area	• When a flicker appears on the tuner display like a horizontal or vertical out-of-sync symptom
7.1.5 (4) OSD Filter Setting	• When a character flicker appears on the OSD depending on the monitor.

2. Diagnosis type

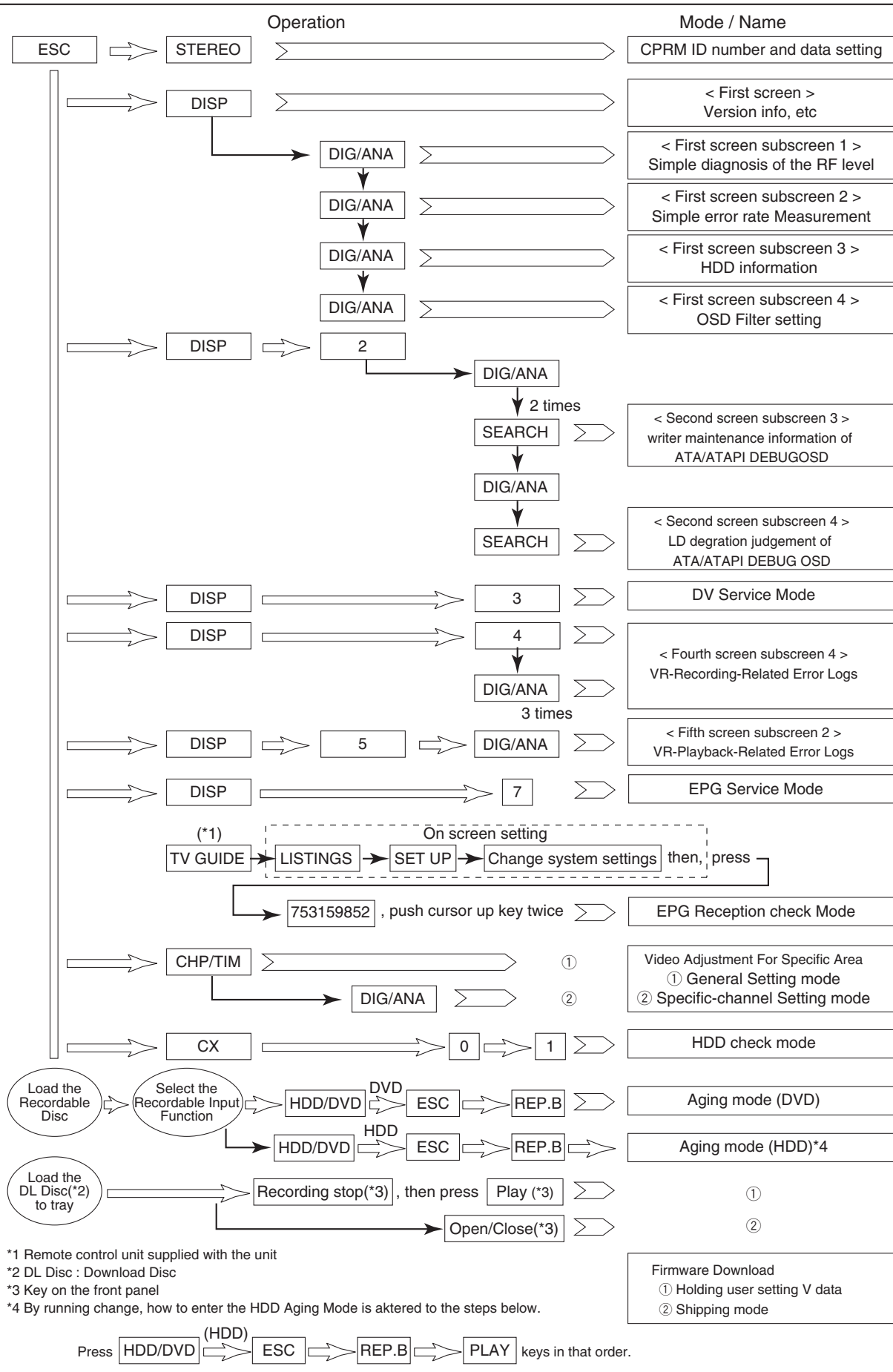
7.1.5 Service Mode First screen : Version, Simple diagnosis of the RF level, Simple error rate measurement, HDD information. Second screen : ATA/ATAPI debug screen, LD degradation judgement Fourth screen : VR-recording-related error loss Fifth screen : VR-playback-related error loss	• When confirming version information • When confirming the state of DRIVE Assy.
7.1.6 DV Service Mode	When any failures occurs while a DV device connected
7.1.7 EPG Service Mode	When EPG data cannot be or can be only partially obtained.
7.1.8 Aging Mode	When a claimed symptom is difficult to reproduce.
7.1.9 HDD Check Mode	When checking the quality of HDD.

◆ Necessary procedure List when replacing Assys

Following is the surely necessary procedures and the product state after changing when replacing next ASSYs.

Replaced ASSY	Necessary setting	State after replacing	
		User setting	HDD contents
MAIN ASSY JACB ASSY	1. Model setting 2. CPRM setting 3. Firmware download	×	○
DRIVE ASSY	1. CPRM setting 2. Firmware download	○	○
HDD	1. CPRM setting 2. Firmware download	○	×

SERVICE MODE MAP



7.1.1 MODEL SETTING

[Purposes]

When the MAIN Assy and/or TUJB Assy that are(is) commonly used with another model are(is) replaced, they(it) must recognize the model of this unit.

Items to be set: The model number, destination, and region No. must be set.

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[Notes]

- Once the setting has been made, it can never be changed. Be sure to make the setting correctly.
- As this setting resets the Assy(s) in question to the factory-preset status, it is recommended that you obtain the customer's consent beforehand.

[Procedures]

- ① After power on, the following screen is displayed on TV monitor. Press four digits properly (for example "8201") by using the remote control unit for service, according to the screen information.

[Recorder's Model Setting]

Input the number using the remote for Service.

> - - -

Input No. Model

[8201 :]	DVR-533H/KU/CA
[8301 :]	DVR-633H /KU/CA
[9201 :]	DVR-531H /KU/CA

- ② Disconnect then reconnect the AC power cord of the unit. Be careful not to impart vibration to the unit immediately after the AC power cord is disconnected.

- ③ Reset the recorder to all its factory settings.
(Make sure that the recorder is on. Press and hold ■ (STOP) key and press ⏻ (STANDBY/ON) key on the front panel.)
The recorder turns off with all settings reset.

- ④ Press [ESC] then [DISP] keys by using the remote control unit for servicing, and then confirm each Model Name (for example "DVR-533H/KU/CA").

```

DVR-533H/KU/CA   VERSION: 1.**
SYSCON  : RELEASE_166
              Rev   :1.10357.2.43
TUNERCON : 835.000      OK
DRIVE    : DVD-RW DVR-R09R  OK
              1.52        OK
              DKT0000233JP  OK

HDD      : WDC WD800BB-xxJKCx  80
DEVICE   : PRISM2-ES2
REGION   : 1
C        : *****
FLASH    : 64M
IRCON    : 1.01      OK
TFD      : EPG US LIB   OK
    
```

- ⑤ End

7.1.2 CPRM ID NUMBER AND DATA SETTING

[Purposes]

For the DVD recorder, it is necessary with the recoding/playback of DVD-RW disc to set an individual number (ID number) and ID data to each recorder. If the number and data are not set correctly with the following procedure, cannot work with residual quantity 0:00 or operations in the future may not be guaranteed with RW disc. You will find the ID number to be set on the ID label on the rear panel.

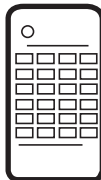
The Input is Necessary When:

- "CPRM ERR" is displayed on the FL display immediately after the power is turned on or in Stop mode.
- When the MAIN ASSY, DRIVE ASSY or the HDD is exchanged.

[Tools to be used]



Remote control unit supplied
with the unit (VXX2967)



Remote control unit for servicing
(GGF1381)



DVD Recorder Data Disc
(GGV1239) (*1)

[Notes]

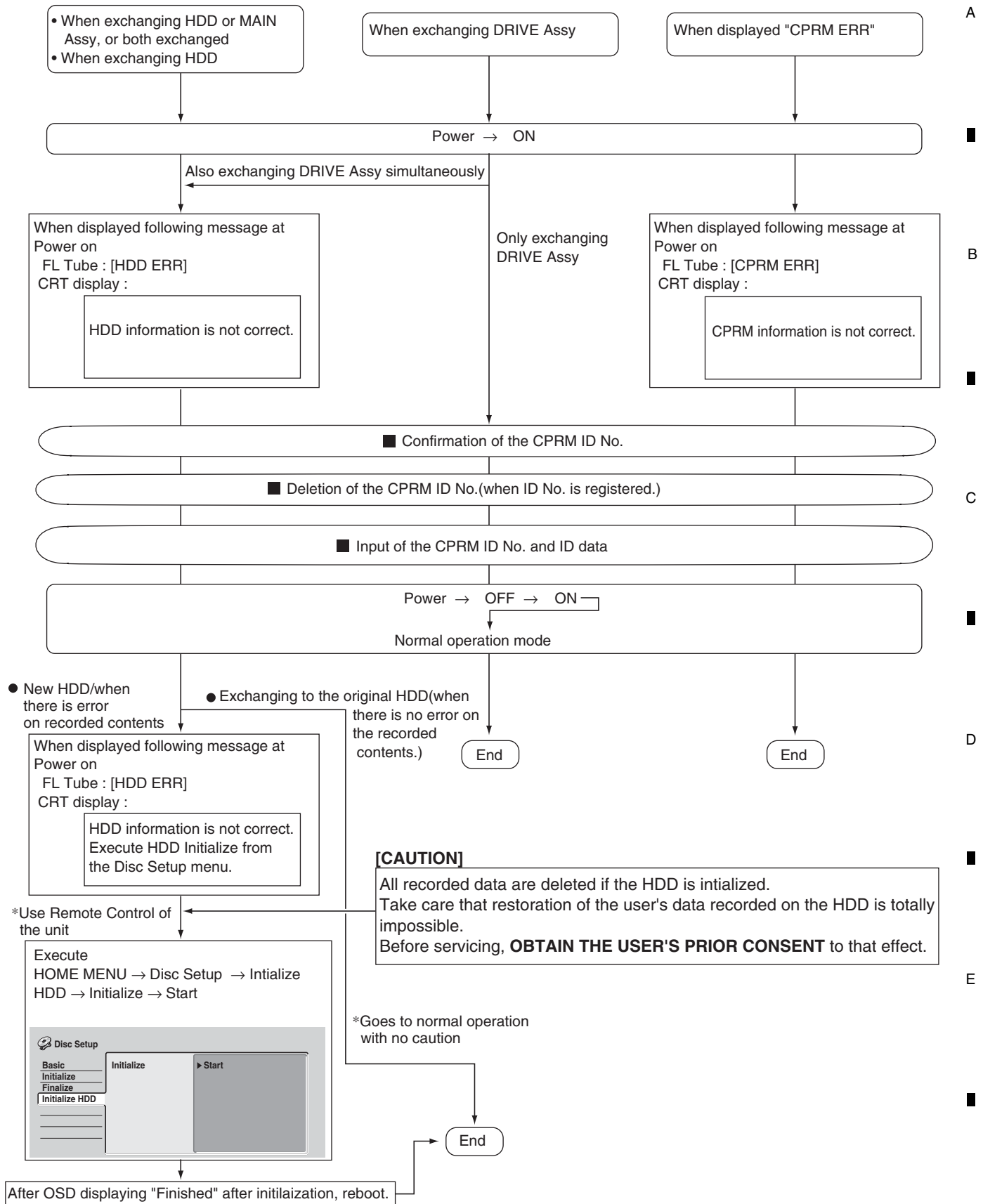
Important: If no ID label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

- Input the ID number while the unit is in Stop mode.
- After the data are read from the ID data disc (GGV1239), the disc will automatically be unloaded.

(*1) DDV1239 will be released on July 2005.

Until new disk (GGV1239) will be released, use GGV1179.

Input Flow of the ID No. and ID data when exchanging HDD, MAIN Assy or Drive Assy



How to Input the ID Number and ID Data

① To enter the input mode, press **[ESC]**+**[STEREO]** keys sequentially in a status with no ID number set, such as after FLASH-ROM downloading.



② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)

[Recorder's ID Number Setting]
ID Number ?
> -----
<CLEAR> Exit

Input ID Number !



③ After inputting the number, press **[SEARCH]** keys to register the ID number.

[Recorder's ID Number Setting]
ID Number ?
> 0 0 0 0 0 0 0 0 1 OK ?
<PLAY> Compare Mode
<SEARCH> Enter

Input ID Number !



④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "INSERT ID.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "**■/▲**" on the player.

[Recorder's ID Data Setting]

<CLEAR> Exit

Insert The ID Data Disc !



⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "LOAD ID.")

[Recorder's ID Data Setting]

Loading The ID Data Disc !



⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WRITE ID.")

[Recorder's ID Data Setting]

Wait Rom Writing !



⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID OK.")

⑧ After confirming this message, press **[CLEAR]** key to exit the input mode.

[Recorder's ID Data Setting]

Rom Write OK !

<CLEAR> Exit

[How to Confirm the ID Number]

- ① Press **[ESC]**+**[STEREO]** keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.
- ② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.
- ③ To exit this mode, press **[CLEAR]** key.

② → [Recorder's ID Number Setting]
ID Number ?
[0 0 0 0 0 0 0 1]
Compare
> * * * * *
③ → <CLEAR> Exit
<STEREO> ID Data Setting Mode
Input ID Number !

[How to Clear the ID Number]

- ① Press **[ESC]**+**[STEREO]** keys sequentially with an ID number already set, and the unit enters the ID number confirmation mode.
- ② Input the same number as the ID number you have set.

② → [Recorder's ID Number Setting]
ID Number ?
[0 0 0 0 0 0 0 1]
Compare
> * * * * *
<CLEAR> Exit
<STEREO> ID Data Setting Mode
Input ID Number !

- ③ After inputting the number, press **[STOP]** key.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step ②.
(**[STOP]** key is not accepted until 9 digits are entered.)

③ → [Recorder's ID Number Setting]
ID Number ?
[0 0 0 0 0 0 0 1]
Compare
> 0 0 0 0 0 0 0 1 OK ?
<PLAY> Enter
③ → <STOP> Memory Clear
<STEREO> ID Data Setting Mode
Input ID Number !

7.1.3 FIRMWARE DOWNLOADING METHOD

[Purposes]

1. When the main board is replaced, the firmware versions for the system control computer, drive, IR microcomputer and the TUFL microcomputer do not match, and operations of the unit may be destabilized.

To match the versions for the above four, firmware downloading is necessary in the following two cases:

- ① After the model setting
- ② When NG is displayed on the first screen (version information, etc.) of Service mode
- ③ After changing MAIN Assy, JACB Assy or Drive Assy
- ④ After changing HDD (downloading the EPG Library (program code) to HDD)

[Notes]

When downloading is disabled, at ON time, usually "HDD data is not correct" is displayed on screen and "HDD ERR" on the FL . The EPG program is not booted up.

2. Rewriting the firmware to the latest version may ameliorate the symptoms claimed by the customer.

There are the following two methods for downloading: disc download and serial download

1. DISC DOWNLOAD

[Tools to be used]



Remote control unit
for servicing
(GGF1381)



Download DISC

[Notes]

Be sure NOT to turn off the unit during downloading.
If the unit is turned off during downloading, the SYSCON, TUNERCON and DRIVE programs may not be properly rewritten, in which case the unit may not be able to initialize itself normally when turned on again.

- [Procedure]**
- ① Open a disc tray by pressing the "OPEN/CLOSE" button.
 - ② Put the download disc on the tray. Press a "Record Stop" button while pressing a "PLAY" button on the frontpanel.
 - * The disc tray closes automatically and the disc is loaded.
 - * The disc tray opens automatically after loading.

FL display

LOAD



DOWNLOAD - 1



DISC DWLD

- ③ Take out the Download Disc.



DOWNLOAD - 2



DOWNLOAD - 3



DOWNLOAD - 5



DOWNLOAD - 4

* After download is completed, the power turns off, and turns on and a disc tray closes automatically.

* It takes for about 7-8 minutes until download is completed.

- ④ Press a "ESC" button, then press "DISP" button on the remote control unit for servicing.
- ⑤ Confirm a firmware release version.
- ⑥ Press "ESC" button on the remote control unit for servicing in order to exit the test mode.

[Tips]

- (1) If the power is not correctly turned on or when the power is shut off during downloading, proceed as follows before performing download again:
 - In a case where downloading was incorrectly terminated while "DOWNLOAD-1" was displayed on the FL display:
The EPG Library (program code) will not be downloaded to HDD correctly.
Download from the disc again.
When it is unable to download, or not operating correctly, replace the HDD.
 - In a case where downloading was incorrectly terminated while "DOWNLOAD-2" was displayed on the FL display:
The SYSCON program will not function correctly.
If the program cannot be downloaded from the disc or through serial communication, replace the FLASH ROM (IC1102 : MAIN ASSY).
 - In a case where downloading was incorrectly terminated while "DOWNLOAD-3" was displayed on the FL display:
The DRIVE program will not function correctly.
If the program cannot be downloaded from the disc or through serial communication, replace the DRIVE Assy.
 - In a case where downloading was incorrectly terminated while "DOWNLOAD-5" was displayed on the FL display:
The program for the IR microcomputer will not function correctly.
If the program cannot be downloaded from the disc, replace the IRCON microcomputer (IC3401 : MAIN ASSY).
 - In a case where downloading was incorrectly terminated while "DOWNLOAD-4" was displayed on the FL display:
The program for the tuner microcomputer will not function correctly.
If the program cannot be downloaded from the disc or through serial communication, replace the TUNERCON microcomputer (IC101 : JACB ASSY).
- (2) The setting way to shipping mode (Reference)
At ② lines of the [Procedures], press "OPEN/CLOSE" button while pressing REC STOP button.

2. SERIAL DOWNLOAD

[Purposes]

1. When the main board is replaced, the firmware versions for the system control computer, drive, and the TUFL microcomputer do not match, and operations of the unit may be destabilized. In such a case, the versions for the above three must be matched.
2. This method is used when disc downloading fails.

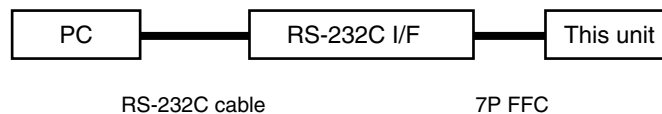
• In the serial download, the stored code are not downloaded to HDD. After serial downloading, be sure to do disc download.

[Tools to be used]

- * PC with serial port
- * RS-232C straight cable
- * RS-232C I/F jig (GGF1348)
- * 7P FFC (VDA1681)
- * Download program (UFU.exe)
- * Firmware

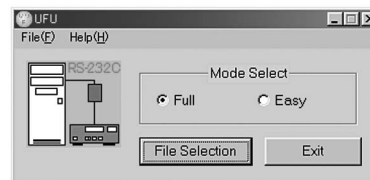
[Connection]

Connect as follows:



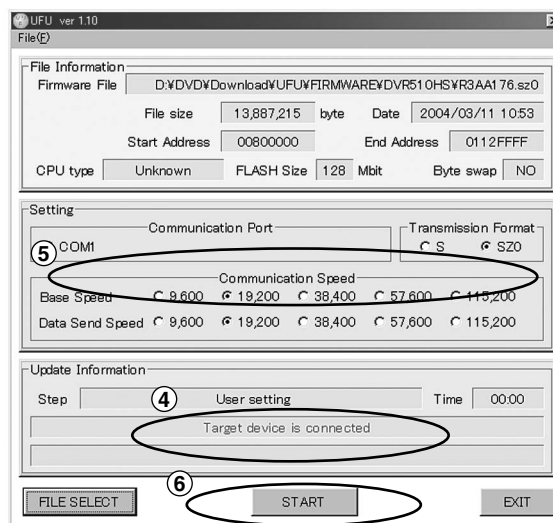
[Procedures]

- ① Connect the 232C I/F jigs above way.
- ② Turn on the PC and start the "UFU.exe".
- ③ Select the Firmware file. ("sz0" file)
- ④ Turn the DVD recorder on and start the download program.
"Target Device is connected" is appeared on the screen.



- ⑤ Select the Communication Speed (Baud Rate)
 - a) Base Speed 38,400
 - b) Data Send Speed 115,200

- ⑥ START
 - Even if you click "START" button, sometimes "Communication Error" may come out one to twice, and download may fail. In this case, please click "START" again.
 - Other factors can be considered if download fails 3 times or more.
 - And it takes about an hour for updating the firmware.



[Tips]

- Indication when the maximum number (12) of channels have individual settings
If a channel that does not have specific settings is currently selected, the indication will be as shown below, and individual data items cannot be set for that channel. To set individual data items for the currently selected channel, you must clear any specific-channel settings for one or more channels.

AVIO Specific Area Mode Ver.200
Input - [TUNER]
Sync AGC : ON *

Threshold	: Manual Threshold Level	
Threshold Level	: 052	
Bottom Limit	: 000	*

Individual setting state

Sorry !
You can store only 12 channels
for Specific Area mode.

2. General Setting mode**[How to enter this mode]**

- To shift from Specific-Channel Setting mode:
Each time the **[DIG/ANA]** key is pressed, Specific-Channel Setting mode and General Setting mode are alternately selected.
- To shift from Normal mode (recording/playback stop):
Press the **[ESC]** then **[CHP/TIM]** keys.

[How to exit] Press the **[ESC]** key to return the normal mode.

[Setting examples]

Show setting example on the General Setting mode screen to the following.
Regarding setting of actual each item, refer to table 1 (key operations in specific-area setting mode).

[General Setting mode screen]

AVIO Specific Area Mode Ver 2.00
Input - [TUNER]
Sync AGC : ON *

Threshold	: Normal	*
Threshold Level	:	
Bottom Limit	: 000	*

*: Setting is the default.

[Display in General Setting mode when the channel currently displayed has specific settings]

AVIO Specific Area Mode Ver 2.00
Input - [TUNER]
Sync AGC : ON *

Threshold	: Normal	*
Threshold Level	:	
Bottom Limit	: 000	*

This channel is set up
individually.

[Tips]

- General Setting mode can be entered only during recording/playback stop.
- The currently selected input mode (TUNER or LINE) is displayed for "Input."
- If L1, L2, L3, or DV is selected for input, general settings for the line input can be made (DV is not valid for specific-area settings), and if TUNER is selected, general settings for the tuner input can be made.

Table 1: key operations in specific-Area setting mode (1/2)
Key operations in Specific Area Setting mode of the remote control units are shown in the table below
(the keys are of the remote control unit for servicing unless otherwise stated):

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[DIG/ANA]	Switches General setting mode and Specific setting mode.	—	—	<input type="radio"/>	<input type="radio"/>
[INPUT SELECT], [CHANNEL +/-] (Remote control unit supplied with this unit)	Switches inputs or channels.	—	—	<input type="radio"/>	<input type="radio"/>
[SIDE A], [SIDE B]	Sets SyncAGC.	ON(*) / OFF	ON : The sync level is set to an appropriate value. OFF : Cancel the Sync AGC.	<input type="radio"/>	<input type="radio"/>
[Rev x3], [x3 Fwd]	Sets Threshold.	(*)Normal Bottom + Alfa Manual Threshold Level V Manual Threshold Level		<input type="radio"/>	<input type="radio"/>
[Rev CHAPTER SKIP] [CHAPTER SKIP Fwd]	Sets Threshold Level.	According to the selected Threshold type, the value can be changed in the range shown below: • Bottom + Alfa 0 - 255 (Default : 87) • Manual Threshold Level 0 - 255 (Default : 173) • V Manual Threshold Level 0 - 255 (Default : 173)	—	<input type="radio"/>	<input type="radio"/>
				<input type="radio"/>	<input type="radio"/>
				<input type="radio"/>	<input type="radio"/>

Table 1: key operations in specific-Area setting mode (2/2)

Key	Operation	Switching (*: Default)	Remarks	Used in Specific-Channel Setting mode	Used in General Setting mode
[<< STILL STEP], [STILL STEP >>]	Sets Bottom Limit.	0 - 255 (Default: 0)	-	<input type="radio"/>	<input type="radio"/>
[PLAY]	All channels that have specific setting data will be canceled, and the specific data will be initialized.	-	The General Setting data will not be changed.	<input type="radio"/>	×
[CLEAR]	Specific-Channel Setting mode: If the currently selected channel has its specific setting, that setting will be canceled. (By canceling the specific setting for that channel, the number of remaining channels that can have specific settings will be increased by one.) General Setting mode: Settings of General Setting mode are initialized.	-	Specific-Channel Setting mode: All specific data are initialized. The General Setting data will not be changed. General Setting mode: All general setting data are reset to default. The specific setting data will not be changed (will be retained).	<input type="radio"/>	<input type="radio"/>
[PAUSE]	The specific-channel-setting data for the currently selected channel are reset to default.	-	The General Setting data will not be changed (will be retained).	<input type="radio"/>	×
[ESC]	To quit VDEC Setting mode for a specific area and clear the on-screen display.	-	-	<input type="radio"/>	<input type="radio"/>

Notes:

- Each key listed in Table 1 above is active only while the tuner is completely stopped.
- The setting values will not be reset to default even if resetting to the state at the time of shipment is performed.

7.1.5 SERVICE MODE

Overview and purposes

To be used to check the status of the product and to collect the information for failure diagnosis.
The following information to be used for servicing is displayed:

- [1] First screen : Version, HDD information, etc.
- [2] Second screen : ATA/ATAPI debug screen (Writer information)
- [4] Fourth screen : VR-recording-related error logs
- [5] Fifth screen : VR-playback-related error logs

Each screen has sublevel screens.

[Note]

After entering any Service mode screen, to shift to another Service mode screen, first quit that Service mode screen then enter another Service mode screen.

1. Version information, etc. (First screen)

[Purposes]

To check the versions of the system control computer, TUNER microcomputer, and firmware for the drive, simple measurement of the RF level for the U/V tuner, results of the simple error rate measurement, HDD information, and OSD Filter setting

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

[How to enter] While the GUI screen is not displayed, press the **[ESC]** then **[DISP]** keys.

How to enter and change subscreens of the first screen: While the first screen is displayed, press the **[DIG/ANA]** key repeatedly until your desired subscreen is displayed. The subscreens change

[How to quit] Press the **[ESC]** key.

[Description]

(1) First screen

① DVR-533H/KU/CA ② → VERSION: 1.**
 ③ SYSCON : RELEASE_166
 Rev : 1.10357.2.43
 ④ TUNERCON : 835.000 OK
 ⑤ DRIVE : DVD-RW DVR-R09R OK
 1.52 OK
 DKT0000233JP OK
 ⑥ HDD : WDC WD800BB-xxJKCx 80
 ⑦ DEVICE : PRISM2-ES2
 ⑧ REGION : 1
 ⑨ C : * * * * *
 ⑩ FLASH : 64M
 ⑪ IRCON : 1.01 OK
 ⑫ TFD : EPG US LIB OK

OK : Appropriate version compared with that of the firmware of the system control computer
OK+ : The version of the TUNER microcomputer is advanced.
 Measures to be taken: Download the firmware.
NG- : The version of the TUNER microcomputer is older.
 Measures to be taken:
 • Download the firmware.

OK : The appropriate drive is mounted.
NG : An inappropriate drive is mounted.
 Measures to be taken: Replace with an appropriate DRIVE Assy.

OK : Appropriate version compared with that of the firmware of the system control computer
OK+ : The version of the drive microcomputer is advanced.
 Measures to be taken: Download the firmware.
NG- : The version of the drive microcomputer is older.
 Measures to be taken: Download the firmware.

OK : The serial No. for the drive has been registered.
NG : The serial No. for the drive has not been registered.
 Measures to be taken: Replace with an appropriate DRIVE Assy.

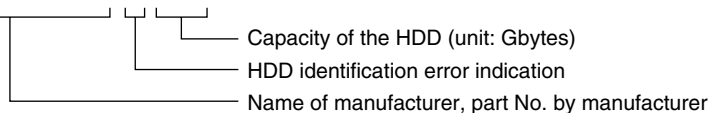
OK : Appropriate version of the IRCON
NG+ : The version of the drive IR blaster computer is advanced.
 Measures to be taken: Download the firmware.
NG- : The version of the IR blaster microcomputer is older.
 Measures to be taken: Download the firmware.

OK : Normal readout is finished.
NG : ***** : Disable to read, Display in hexadecimal of revision of HDD stored code
 When "*****" is displayed, data are not downloaded.
 Measures to be taken: ① CPRM Input
 ② Download the firmware.

- ① Model name/destination
 ② Version of the recorder software
 ③ Revision No. of the system-control computer software
 ④ Version No. of the tuner microcomputer
 Result of the combination ckeck with system u-com
 ⑤ Information on the built-in drive
 (Model name, version No., model type, serial No.)
 ⑥ Data of the built-in HDD, capacity of the HDD
 ⑦ Version No. of PRISM
 ⑧ Region No.
 ⑨ CPRM information (CPRM key No.)
 ⑩ FLASH ROM information
 ⑪ EPG dictionary information, Version
 ⑫ HDD stored code information
 HDD stored data (EPG Library)
 Category of stored data
 US EPG model : EPG US LIB

• Details on HDD data are described below:

HDD : WDC10234564 # 160



If any abnormality exists in HDD connection, the indications shown in Table 1 below are displayed.

Table 1: HDD recognition status represented by the HDD data display

HDD identification conditions	Example of HDD data to be displayed	Remarks
Failure in physical identification of HDD (no connection, defective HDD, interface error)	Blank space	<ul style="list-style-type: none"> Check the connection to the ATA connector. Replace the ATA flexible cable and connector. Replace the HDD. Replace the resistor in the ATA communication line.
Physical identification of HDD possible, but not identified (CPRM ID is not input.)	WDC 10234564 # 160	<ul style="list-style-type: none"> Input the CPRM ID.
Physical identification of HDD possible, HDD identified, but failure in logical formatting	WDC 10234564 ! 160	<ul style="list-style-type: none"> "!" represents an HDD-recognition error. Initialize the HDD (see page 82), or erase all titles.
Physical identification of HDD possible, HDD identified, and correct logical formatting (HDD correctly identified)	WDC 10234564 160	

If an error indication in the HDD data does not disappear even after the above measures were taken, refer to another sheet of "HDD Service Mode."

(2) Simple diagnosis of the RF level (Subscreen 1)

[Purposes] To check the RF signal of the U/V tuner by checking the input frequency difference and AGC voltage in this debug mode

[How to enter] While the User Setting display is displayed, press the **[ESC]**, **[DISP]**, then **[DIG/ANA]** keys, in that order.

[How to quit] Press the **[ESC]** key.

[Description]

```

DVR-533H/KU/CA  VERSION      : 1.**
SYSCON   : RELEASE_***
Rev      :1.*****
TUNERCON : 835.000          OK
DRIVE    : DVD-RW DVR-R09R  OK
          1.**              OK
          DKT0000233JP      OK

HDD      : WDC WD800BB-xxJcX 80
DEVICE   : PRISM2-ES2
REGION   : 1
C        : * * * * *

Input CH : ** ch
Freq Diff : Low 1
AGC Volt  : **** mV
  
```

Subscreen 1

Input channel
Input frequency difference
AGC voltage

1) Frequency Difference (Freg Diff)

How much tuning is off is monitored, as shown below:

Input Frequency	Display
High	High Center
Just Tune	Low 1
Low	Low 2

2) AGC voltage (AGC Volt)

The gain controlled by the tuner is monitored to infer the input electric field intensity.
(The accuracy of inference differs depending on the product.)

	Field Intensity	AGC Volt
Intense field area (Clear image)	70 dB μ or more	3300 mV or more
Less intense field area (Noise may be generated.)	50 dB μ or more 70 dB μ or less	3100 - 3300mV
Weak field area (Much noise. EPG/VPS/PDC sometimes cannot be obtained.)	30 dB μ or more 50 dB μ or less	2600 - 3100mV
Very weak field area (Image damaged. EPG/VPS/PDC cannot be obtained.)	30 dB μ or less	2600 mV or less

Tips:

For good reception, the field intensity must be 50 dB μ or more (AGC Volt 3100 mV or more).
For accurate measurement, use a field intensity meter.

(3) Simple Error Rate Measurement (Subscreen 2)

[How to enter] • While the User Operation screen is displayed, press the **[ESC]** then **[DISP]** keys, then the **[DIG/ANA]** key twice, in that order.
• While subscreen 1 of the first screen is displayed, press the **[DIG/ANA]** key.

[How to quit] Press the **[ESC]** key.

[Measurement procedures]

- ① Display subscreen 2.
- ② Load the Test disc (GGV1025).
- ③ Judge the results of the error rate measurement by referring to Table 1 on next page.

ERR RATE : *.*e-*

Subscreen 2

[Tips]

During VR mode playback, the average value of the past 10 VOBUs is displayed. During DVD-Video or Video mode playback, the average value of the past 256 sectors is displayed.
During VR mode playback, the speed ratio of the drive (/: normal, no indication: double speed) is also displayed.

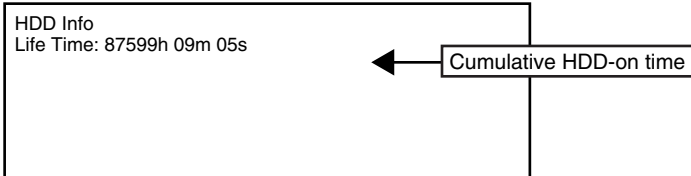
Table 1: Thresholds when determining OK or Error

Disc type	Recording mode	Finalized or not finalized	Reference value
DVD-VIDEO	—	—	8.0×10^{-4}
DVD-R	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}
DVD-RW	Video mode	Finalized	1.0×10^{-3}
		Not finalized	1.0×10^{-3}

(4) HDD information (Subscreen 3)

- [How to enter]**
- While the User Operation screen is displayed, press the **[ESC]** then **[DISP]** keys, then the **[DIG/ANA]** key three times, in that order.
 - While subscreen 2 of the first screen is displayed, press the **[DIG/ANA]** key.

[How to quit] Press the **[ESC]** key.

[Mode description]

Subscreen 3

[Tips]

- How the data on cumulative HDD-on time are processed in memory**

Storage place:
FLASH ROM

Timing of referring to the data on cumulative HDD-on time:
When the power is turned on, fails, the FLASH ROM is referred to.

Timing of updating the data on cumulative HDD-on time:
While the HDD is on, the data on cumulative HDD-on time in the RAM is updated every 3 seconds, and every time updating is executed the data are stored in the Backup SRAM. When the power is turned off, the data are stored in the FLASH ROM.

- How to clear the data on cumulative HDD-on time**

FLASH ROM:

When the HDD Identification Setting is performed, the data on cumulative HDD-on time are automatically cleared. The HDD Identification Setting is automatically performed when the CPRM setting is performed on the CPRM setting screen (to display the CPRM setting screen, press the **[ESC]** then the **[STEREO]** keys).

Notes:

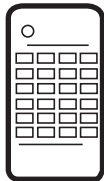
- The data on cumulative HDD-on time are not cleared when resetting to factory-preset values is performed.
- The data on cumulative HDD-on time are not cleared when the system-control computer software is downloaded.

(5) OSD FILTER SETTING (SUB screen 4)

[Purpose]

Depending on the monitor used, the character flicker on the OSD may stand out.
If a system, such as charavter flicker, appears on the monitor, select the filter response.

[Tools to be used]



Remote control unit for servicing
(GGF1381)

[How to enter]

- While the User Operation screen is displayed, press the **ESC** then **DISP** keys, then the **DIG/ANA** key four times, in that order.
- While subscreen 3 of the first screen is displayed, press the **DIG/ANA** key.

[How to quit]

Press the **ESC** key.

[Setting procedures]

- Display subscreen 4.
- Select the setting from the key operation table.

OSD Filter Setting
OSD FILTER : ON

Subscreen 4

[Tips]

- * If a setting data is changed, that is immediately reflected, and the data are written to nonvolatile memory (IC1102 : FLASH).
- * The download for shipping mode see the data to default (ON).

[(Table 2) Key operation of OSD Filter setting]

Key	Operation	Setting data (* : default)	Remarks
[Rev x 3] [x 3 Fwd]	Select ON / OFF setting of OSD Filter	ON(*) / OFF	[Rev x3] : Set the OSD Blightness Filter OFF [x3 Fwd] : Set the OSD Blightness Filter ON
[ESC]	Turn off the OSD and quit from the function. (Appears the tuner screen.)	—	—

2. ATA/ATAPI Debug Screen (Second screen)

[Purposes]

To be used as a rough guide to judge whether the pickup unit is all right or not

- Dirt on the pickup lens
- Degradation of the laser diodes for reading CDs and reading/writing to/from DVDs

[Tools to be used]



Remote control unit for servicing
(GGF1381)



Aluminum-coated test disc
(GGV1025)

[How to enter]

- While the User Operation display is displayed, press the **[ESC]**, **[DISP]**, then **[2]** keys, in that order.
- While any subscreen of the second screen is displayed, press the **[DIG/ANA]** key repeatedly. The subscreens change cyclically.

[How to quit] Press the **[ESC]** key.

(1) Writer maintenance information of ATA/ATAPI DEBUG OSD (Subscreen 3)

[How to enter] • While the User Operation screen is displayed, press the **[ESC]**, **[DISP]** then **[2]** keys, then the **[DIG/ANA]** key twice, in that order.

[How to quit] Press the **[ESC]** key.

[Procedures] Update the display by pressing the **[SEARCH]** key while subscreen 3 is displayed.

ATA/ATAPI Writer Maintenance Info	
① Power ON	00 00 00 0000 00000000
0102:56	01 00 00 0000 00000000
DVD	02 00 00 0000 00000000
② R0053:48	03 00 00 0000 00000000
③ W0022:16	04 00 00 0000 00000000
CD	05 00 00 0000 00000000
④ R0034:04	06 00 00 0000 00000000
⑤ W0000:00	07 00 00 0000 00000000
	00-00

Error log for the Writer
(Not for Service)

- ① Power-on time/cumulative power-on time
- ② Duration of emission of the laser diode (LD) for DVD-R/DVD while reading
- ③ Duration of emission of the LD for DVD-W/DVD while writing
- ④ Duration of emission of the LD for CD-R/CD while reading
- ⑤ Duration of emission of the LD for CD-W/CD while writing
(This function is not used for this model.)

- ② If the total hours of duration of emission of the laser diode (LD) for DVDs while reading ② and that of emission of the LD for DVDs while writing ③ exceed 4,700 hours, the LDs may be degraded. Perform an LD degradation judgment, using subscreen 4.

[Tips]

MTTF hours for each LD (R9R Drive Assy [total hours of reading and writing])
DVD: 4,700 hours
CD: 11,000 hours

The ATA/ATAPI Writer Maintenance Info is obtained each time the power is turned on. Thereafter, the data on the subscreen is updated each time the **[SEARCH]** key is pressed (the updating command is sent) while this subscreen is displayed. Care must be taken when updating this subscreen, because an undesired command is inserted if it is executed while recording, etc.

(2) LD degradation judgment of ATA/ATAPI DEBUG OSD (Subscreen 4)

[How to enter] • While the User Operation screen is displayed, press the **[ESC]**, **[DISP]** then **[2]** keys, then the **[DIG/ANA]** key three times, in that order.

[How to quit] Press the **[ESC]** key.

[Notes]

- For correct measurement of items ① to ④ indicated in the display below, leave the unit at room temperature (25°C) for a while before turning it on, and do not load a disc.
- For RF measurement (item ⑤), it is recommended to use the Test disc (GGV1025). As the RF level differs depending on the characteristics of the pickup from product to product, it cannot be used for judging degradation of the LD. Use the RF level as a rough guide to know the difference between before and after lens cleaning.

[Procedures] To update the value for each item, press the **[SEARCH]** key while subscreen 4 is displayed. For details on each item and the conditions of updating the values, see Table 2 below.

ATA / ATAPI - LD Degrade			
①	CD	: 0070 104 %	OK
②	DVD	: 0068 96 %	OK
③	TMP	: 00A3 41 °C	
④	ADJ	: 0067 26 °C	
⑤	RF	: 3D70	
⑥	TLT	: FFD5	

Table 2: Description of each item and conditions for updating data

No.	Item	Description	Conditions for updating by pressing the SEARCH key
①	CD	Degradation judgment of LD for CD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
②	DVD	Degradation judgment of LD for DVD. Regarded as NG when the value is 120% or higher (same standard as for the PC drive)	No disc inserted in the disc tray
③	TMP	Current temperature inside the Writer	No disc inserted in the disc tray
④	ADJ	Temperature (approx. 25°C) inside the Writer during adjustment	No disc inserted in the disc tray
⑤	RF	RF level (16-bit data, proportional calculation performed using the actual RF level value with 2.5 V = 0xFFFF as the maximum value, displayed in 4-digit hexadecimal)	During playback of disc medium (GGV1025)
⑥	TLT	Writer adjustment data for straight (non-HDD) model (FFFF is displayed when the writer is not adjusted.)	No condition

If the results of degradation of the LDs for CDs and DVDs are both NG, replace the drive.

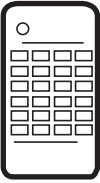
3. VR-Recording-Related Error Logs (Fourth screen)

[Purposes]

To roughly determine in which category shown below a symptom that is difficult to reproduce belongs.
For details on the categories of error logs displayed, see "Table 1: Description of VR-recording-related errors."

- Errors related to the MPEG Encoder
- Errors related to the drive system
- Errors related to copying
- Errors related to others
- Errors related to the HDD

[Tool to be used]



Remote control unit for servicing (GGF1381)

[How to enter]

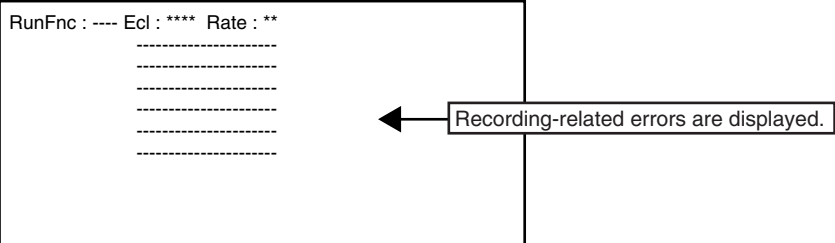
- While the User Operation display is displayed, press the **[ESC]**, **[DISP]**, then **[4]** keys, in that order.
- While any subscreen of the fourth screen is displayed, press the **[DIG/ANA]** key repeatedly.
The subscreens change cyclically.

[How to quit] Press the **[ESC]** key.

[Description of each subscreen]

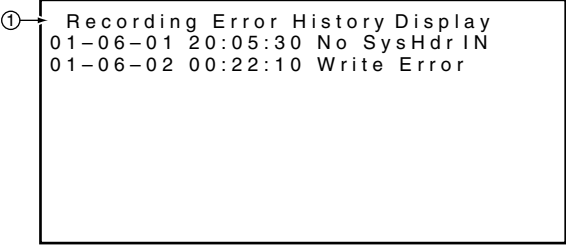
(1) VR-Recording-Related Error Logs (Subscreen 1)

- Errors related to recording are displayed on the lines "Rec Err.," as shown below.
For details on errors, see "Table 1: Description of VR-recording-related errors."



(2) Subscreen 2 and 3 (These subscreens are not for service use.)

(3) VR-Recording-Related Error Logs (Subscreen 4)



- ① There are two error-log screens, on which up to 9 logs per screen are displayed.
(generation time [year-month-day, hour:minute:second], error data in simplified description)

[Tips]

- The two error-log screens can be switched by pressing the **[SPEED+]** or **[SPEED-]** key.
- For details on error messages, see Table 1 "Description of VR-recording-related errors".

(4) Subscreen 5 to 11 (These subscreens are not for service use.)

4. VR-Playback-Related Error Logs (Fifth screen)

[Purposes]

It can be inferred that an operation that caused an error in the drive was performed or that a failure occurred in the drive if any of the error logs shown in "Table 2: Description of VR-playback-related errors" is recorded on this screen.

[Tool to be used]



Remote control unit for servicing
(GGF1381)

[How to enter]

- While the User Operation display is displayed, press the **[ESC]**, **[DISP]**, then **[5]** keys, in that order.
- While any subscreen of the fifth screen is displayed, press the **[DIG/ANA]** key repeatedly.
The subscreens change cyclically.

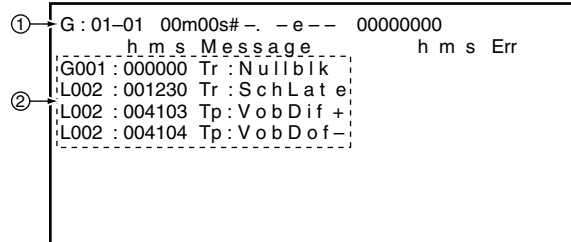
[How to quit] Press the **[ESC]** key.

[Description of each subscreen]

(1) **Subscreen 1** (This subscreen is not for service use.)

(2) VR-Playback Error Logs (Subscreen 2)

- For details on error messages, see Table 2 "Description of VR-playback-related errors".
- If a VR-playback-related error is generated, a problem in data reading from the disc may be suspected.
(The possibility of a problem on the drive side is high.)



- ① Data on location of the display (Display only in disc playback with the VR mode)
Original(G)/play list (L), title No., chapter No. [X:XX-XX],
time of the display (min, sec, frame) [XXmXXsXX],
busy mark of the virtual mechanical-control computer [#],
error rate of the transfer data [X.XeXX],
playback logical address (ID) [XXXXXXXX]
- ② Error message log
Original(G)/play list (L), title No., time of generation (min, sec) [XXX:XXXX],
playback-related error log for the last 13 errors [XX:XXXXXXXX]

Table 1: Description of VR-recording-related errors

Any error message marked with * is displayed "RecErr : -----" on the Subscreen 1 of the fourth screen.

● **Error related to MPEG Encoder**

Error Message	Description
AVEnc Hang	AVEncoder failed
IN Encode *	Changes cannot be made in the process of encoding
No SysHdr IN	System packet is not input periodically
Stm Start NG	Failure to start encoding (reasons not clear)
Stream NG	Inappropriate input stream data
Strm Start NG	Timeout waiting for system packet input at the beginning

● **Error related to Drive system**

In a case of an error in the drive system, scratches or dirt on a disc, or a problem of the drive itself (dirty pickup) may be suspected.

Error Message	Description
Bdr Cls NG	Close Border failed
Bdr Opn NG	Open Border failed
BUF Overflow	Overflow of the Stream Buffer
CLS Rzon Fail	Video Mode Close Rzone failure
Drive Hang	The Drive is hung up.
Drv Err	General error of the drive
Drv Hard Err	Abnormality in the drive hardware or firmware
Drv TimeOut	Timeout waiting for drive operation
Fail Repair	Repair failed
Format NG	Format failed
May Be V mode	Although TMP_VMGI is not written, it may be Video Mode disc.
Mech No Res	No response from the mechanical-control computer
MKB Invalid	MKB reading error
NWA Exhaust	NWA surpassed and impossible to use
OPC NG	OPC failed
PCA Full	PCA has been used up.
Read Err	Reading failed, ECC failed, etc.
ReadOnly DISC *	Because some data are invalid, data cannot be written
RMA Full	RMA has been used up.
Rzn Cls NG	Close RZone failed
Rzn Rpr NG	Repair RZone failed
Rzn Rsv NG	Reserve RZone failed
TMP-VMG WrErr	Video Mode TMP VMGI Write Error
VTSl_B Wr Err	Video Mode VTSl BUP Write Error
VTSlB2 Wr Err	Video Mode VTSl BUP Write Error (After Layer Change)
VTSl Wr Err	Video Mode VTSl Write Error
VTSl_2 Wr Err	Video Mode VTSl Write Error (After Layer Change)
Write Err	The Drive failed to write and could not be recovered.

● **Error related to Dubbing**

Error Message	Description
H2D CP SomeNG	Other NG HDD →DVD copy
Mem get NG	Video Mode Copy Memory has not ensured.
Strm TransfNG	Video Mode Copy Stream Transfer NG
Tracon Trn NG	Video Mode Copy Tracon tranfer has not been completed.
VC Cell Max	Maximum number for Video Mode copy Cells exceeded
VC CopyCancel	Video Mode Copy Copy Cancel

● Error related to Dubbing (continued)

Error Message	Description
VC FlushC NG	Video Mode Copy Flush Cache NG
VC HDD C Err	Inappropriate Video Mode Copy HDD content
VC HDD Inf NG	No information on Video Mode Copy HDD
VCHDD Info NG	Obtaining Video Mode Copy HDD Cell information failed
VC Idling NG	Video Mode Copy idling NG
VC Pck Anl NG	Analizing Video Mode Copy Pack failed
VC Transf Stp	Video Mode Copy Transfer Stop
VC TSO BLK NG	Video Mode Copy TSO Block transfer has not been completed.
VC VOBu SizeE	Video Mode Copy VOBu Size NG
V Rsv RzoneNG	Video Mode Copy Reserve Rzone failed
V2H APP FL NG	VR → HDD APP FLG is OFF
V2H Aud Ch NG	VR →HDD Audio Channel NG
V2H Aud Md NG	VR →HDD Audio Mode NG
V2H Aud Stm N	VR →HDD Audio Stream number NG
V2H SRC Prot	VR →HDD copy prohibitted material
V2H Unknown	VR →HDD other NG
V2H VOBu TMNG	VR →HDD Play back time of each VOBu is different
V2H V Reso NG	VR →HDD Video resolution NG

● Other Errors

Error Message	Description
Abort *	Cancellation
Already open	Extension file is already opened.
BK BATT Down	Backup RAM data has been erased.
BK FSYS Dirty	Backup RAM data has not been wrtten on the File Sys.
BUG	Some bugs
BusReset Done	Bus Reset has been excecuted.
Cell Close NG	Cell Close NG
CPRM IC NG	Inappropriate CPRM IC
Dir Depth Err	Tree of Directory is too deep.
Disc Full	No further data can be written because the disc is full.
DRAM CLR Err	Video Mode DRAM (Stream Buffer) Clear failure
DRAM NG	Abnormality in access to the Work DRAM
Drive Destroy	The drive has crashed.
EncModul Hang	Encoder routine is hung up.
F Alrdy Exst	Extension file is already exist.
File cancel	Extension file is canceled.
FileNot Exist	Extension file is not exist.
Format Excec	Formatting has been executed.
Invalid Disc *	The disc cannot be recognized.
Invalid Param *	Invalid parameter
Invalid P VMG	Information of +VR is NG.
Invalid TMVMG	Invalid TMP_VMG content
Invalid UDF *	Invalid UDF content
Invalid VMG *	Invalid VMG content
Invalid VTSl	VTSl information of +VR is unusual.
Irr Action *	Incorrect action
MKB REVOKED	Error in gaining data
Limit Over *	Standard maximum limit exceeded
No More Info *	No more space in the internal work-management area
No Permission *	No permission to write to the disc
No Video	No video input (not locked)
Now Busy *	In the process of the emergency processing
NV Pck DMA Err	Inappropriate NaviPack DMA
NV Pck MK Err	Error in creating NaviPack
Ourob Strm NG	Inappropriate stream data to the Ouroboros input
Over Heat	Abnormal temperatute
PARAM NO ACCP	Recording parameter is not matched.

● Other Errors (continued)

Error Message	Description
Process Over	Process is overfull.
Protect Src *	Source to be recorded is copy-protected.
Rec Pause *	No operation permitted during recording pause
Relocation Do	VR-recording data was relocated
Repair Excec	Repairing has been executed.
Something *	Undetermined error
SRAM NG	Abnormality in access to the backup work SRAM
Status NG *	Abnormality in change of statuses
SW PVR	Switch to +VR playback process
SW Vpb mode *	Switching to video playback routine is required.
SW Vrec mode *	Switching to video recording routine is required.
Unmatch Stamp *	Impossible to modify because of nonmatching time stamp
VBR-SRAM NG	Abnormality in VBR SRAM
V Categ ID NG	Inappropriate Category ID
V Cate Inf NG	Inappropriate Category information
V Ext MAX Ovr	Count Max exceeded
V ExtToo Big	The extension file is too large.
V Ext TY NG	Type NG
Virgin DISC	Virgin Disc
VOBU Info NG	Inappropriate VOB information
WaterMark Det	Watermark detected
WM Cracked	WM Cracked

● Error related to HDD

Error Message	Description
Do nothing	Do nothing for demand.
ESFSYS CORUPT	easyfsys error
ESFSYS INIT	easyfsys initializing
HDD Buff High	High-level process executed for the HDD Buffer
HDD DEF DONE	HDD deflag finished
HDD DEF ERR	HDD deflag error
HDD Destroy	HDD is not recognized on the bus.
HDD INFO BAD	Incorrect HDD Management Data
HDD Initialize	HDD initialized
HDD IRRG POFF	Abnormal power off
HDD MBR NG	Inconsistent MBR data
HDDReset Done	HDD Reset executed
HDD ROMSUM NG	Rom-code check sum NG
HDD SIG NG	Inconsistent HDD Management Data Magic
HDD SMART NG	Inappropriate HDD SMART
HDD Trans Err	DMA error in HDD copy transfer
HDD unauthor	Inconsistent HDD serial No.
HDD Zero WR	MBR was written
Task No Activ	Task has not been activated.
TT Rec Over	Title recording time full

● No Error

Error Message	Description
Non Err *	Normal

Abbreviations:

ECC = 4 byte Code for Error Correction
 UDF = Universal Disc Format
 PCA = Power Calibration Area
 OPC = Optical Power Control
 NWA = Next Writable Address

VMG = Video Manager
 RMA = Recording Management Area
 MKB = Media Key Block
 TMP_VMG1 = Temporary Video Manager Information
 Border = from Lead-in to Lead-out

Table 2: Description of VR-playback-related errors

A

Error Message	Description
Av : B/CTOvr	AV1: Buffer-clear timeout
Av : SpmTOvr	AV1: Timeout for a step command
Av : StrmOvr	AV1: Timeout for waiting for stream ready
Av : TpmTOvr	AV1: Timeout for TP mode change
CC_OS_ERR	Closed caption task: OS error
ERR_RCV!	TPP task: Detects hang-up of AV decoder and starts recovery
Mn : Av1Hang	Main task: Detects hang-up of AV decoder and starts recovery
Rv : LnkFail	Reverse playback task: Starts compensation by detecting link failure
Rv : LnkTOvr	Reverse playback task: Timeout for waiting for link
Rv : OptTOvr	Reverse playback task: Timeout for waiting for I-picture of the open GOP immediately after starting decoding
Rv : OpnTOvr	Reverse playback task: Timeout for waiting for B-picture of the open GOP immediately after starting decoding
Tr : OrderEr	Transfer task: Inconsistent order
Rv : R2FTOvr	Reverse playback task: Starts retrial after detecting timeout from reverse pause to forward pause
Rv : TopVbEr	Reverse playback task: Forced termination because of a possible error of the top data during reverse normal playback
Rv : 1stTOvr	Reverse playback task: Timeout for waiting for interruption to the top VOBU immediately after starting decoding
Tp : midNULL	TPP task: The management information pointer designated was NULL.
Tp : RStepEr	TPP task: Although the reverse step had failed, the operation was forcibly terminated because the top cell was located.
Tp : ScanNg	TPP task: Failure to set the TPP memory when scanning was canceled.
Tp : tppErr	TPP task: Inconsistency occurred.
Tp : VobDif+	TPP task: The decoder STC advances by 1 VOBU hour.
Tp : VobDif-	TPP task: The STC of the management information advances
Tr : NaviErr	Transfer task: Inconsistency between NAVI (navigator) of management data and actual NAVI
Tr : NullBlk	Transfer task: NULL at the top block (Detecting NG stream made at the DVR-1000 series and starting protection process.)
Rv : OrderEr	Reverse playback task: Inconsistent order
Tr : ReadErr	Transfer task: ATA read error
Tr : SchLate	Transfer task: ATA search late
Tr : SemTOvr	Transfer task: Timeout for gaining semaphore (no synchronization with the display)

B

C

D

Abbreviations:

STC = System Time Clock

VOBU = Video Object Unit

GOP = Group Of Picture

B-picture = Bidirectionally predictive-picture

I-picture = Intra-picture

P-picture = Predictive-picture

TP mode change = AV1 term (Trick Play mode change)

E

F

7.1.6 DV SERVICE MODE

1. DV debug

[Purpose]

To check whether communication between a DV device and the unit is normal when a DV device is connected

[Tools to be used]



Remote control unit for servicing (GGF1381)

- DV device
- DV cable

[How to enter] Press the **[ESC]** , **[DISP]** then **[3]** keys, in that order.

[How to quit] Press the **[ESC]** key.

[Mode description]

- ① **(DV/1394) Init:OK AV:02 DV:01**
- ② **[Recorder] GUID:00E0360004A00001**
- ③ **[DV] GUID:0080880303480E96**
- ④ **VN:VICTOR MN:GR-D50K**
- ⑤ **TM:C3 TS:75 CT:32 WP:01 PS:FF OS:00**
- ⑥ **CA:A000002020 CV:FF MD:VTR**
- ⑦ **[DVdecode:Yes] LineSys:525-60**
- ⑧ **TC:00h20m35s02f RD:02/02/05 RT:10h34m50s**
- ⑨ **ASPECT:4:3 CGMS:000000 APSTB:00 DEC:525-60**
- ⑩ **SF:32KHz QU:12bit AMODE:4) Stereo**

Boldface alphanumerics : Fixed indications
Nonboldface alphanumerics : Variable indications

No.	Item	Description	Remarks
①	Init	Whether the initialization of 1394 LINK and DV order inside PRISM2 has been completed (OK) or not (NG)	
	AV	Number of AV devices recognizing connection	Identification number of AV devices including D-VHS, etc other than DV devices.
	DV	Number of DV devices recognizing connection	If the number does not become 01 even if a DV device is connected, identification of that device fails.
②	GUID	GUID set in ConfigROM of the unit	GUID : Global Unique ID (Specific ID for DV devices)

No.	Item	Description	Remarks
③	GUID	GUID set in ConfigROM of the DV device connected	Data are displayed only if one DV device is identified.
④	VN	Vendor name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the vendor name may not be set in ConfigROM.)
	MN	Model name set in ConfigROM of the connected DV device	Data are displayed only if one DV device is identified. (Depending on the device, the model name may not be set in ConfigROM.)
⑤	TM	Transport Mode data obtained from the DV device	Data are displayed only if one DV device is identified.
	TS	Transport State data obtained from the DV device	
	CT	Cassette Type data obtained from the DV device	
	WP	Write-protection data obtained from the DV device	
	PS	Power-state data obtained from the DV device	
	OS	Output signal mode data obtained from the DV device	
⑥	CA	Connect AV data obtained from the DV device	Data are displayed only if one DV device is identified.
	CV	Camera/Vtr mode data obtained from the DV device	
	MD	DV device mode	Camera or VTR is displayed only if one DV device is identified.
⑦	[DVdecode:XXX]	Whether Yes (in the process of requesting DV input) or No is indicated in XXX	Normally, Yes is indicated only when CH is set to DV.
	LineSys	Input Line System setting	
⑧	TC	Time-code data of the DVdecode Stream, or response data of the Time Code command	Stream time-code data are obtained when the DV signal is inputted. Otherwise, time-code data are obtained through an AV/C command.
	RD	Rec Date of DVdecode Stream	
	RT	Rec Time of DVdecode Stream	
⑨	ASPECT	Aspect Ratio of DVdecode Stream	
	CGMS	CGMS of DVdecode Stream (from left to right, CGMS data of bits 5-4: Audio ch 2, bits 3-2: Audio ch 1, and bits 1-0: Video)	*CGMS (Copy Generation Management System): The two-digit codes added to broadcast programs represent the following: 00: Copy freely, 10: Once copy, 11: Never copy
	APSTB	APS trigger bit of DVdecode stream	
	DEC	With/without DVdecode stream input	With input: Signal type (525-60, 625-50, 1125-60, 1250-50, or Invalid) is indicated, Without input: "No" is indicated.
⑩	SF	Sampling Frequency of DVdecode Stream	If SF is 44 kHz, it is considered that 44.1-kHz audio is input, and sound is muted on the unit.
	QU	QUANTIZATION of DVdecode Stream	
	AMODE	AUDIO MODE of DVdecode Stream	

2. Simple Diagnosis of DV

Symptoms	Location in the Debug Screen	Items to be Checked, and Conditions	Possible causes
No operation for DV input	1	Check the init indication: OK: Initialization of 1394 LINK and DV decoder inside PRISM2 appropriately completed NG: Initialization of 1394 LINK and DV decoder inside PRISM2 has not been completed properly.	Defective IC1001(PRISM 2) / IC5101(1394PHY), improper connection between IC1001 / IC5101 defective soldering, etc.
	2	Check the number of DV devices when one DV device is connected to the recorder: 01 : The connected DV device is correctly identified. Other than 01 : The connected DV device is not correctly identified.	Defective DV terminals, improper connection of the DV-terminal board, defective IC5101(1394PHY), defective cables, an IEEE 1394 device other than the DV
No picture nor sound for DV input	1	Check of DV decoding when the recorder channel is set to DV: Yes: The recorder is in the process of a DV input operation No: The recorder is not executing a DV input operation	Defective IC1001(PRISM2), defective soldering, defective power supply, etc.
	2	Check DEC: 525-60: An NTSC DV signal is input from the DV device. 625-50: A PAL DV signal is input from the DV device. No: No DV signal is input from the DV device.	Defective DV terminals, improper connection of the DV-terminal board, defective IC, defective source device Note: As to a model having the Input Line System setting, if the setting and the actual input signal system do not match, no picture appears.
DV input recording impossible	1	Check CGMS:	Recording cannot be performed for a copy-protected source.
No sound for DV input	1	Check SF: 32 khz: An audio signal with 32-kHz sampling frequency is being input. 48 khz: An audio signal with 48-kHz sampling frequency is being input. 44 khz: An audio signal with 44.1-kHz sampling frequency is being input.	An audio signal with 44.1-kHz sampling frequency is muted.

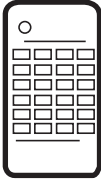
7.1.7 EPG SERVICE MODE

A

[Purposes]

Check the version of TV Guide library.

[Tool to be used]



Remote control unit for servicing
(GGF1381)

B

[How to enter] • Press the [ESC], [DISP], then [7] keys, in that order.

[How to quit] Press the [ESC] key.

C

[Description of the mode]

1. EPG SERVICE MODE

	0	1	2	3	4
	0	1	2	3	4
	0	1	2	3	4
00	(TVComm)-MAIN				
01	VERSION : 008.001.053				
02	UPDATE : 000.000.000				
03					
04					
05					
06					
07	MODEL ID : AF239CAD				
08					
09					
10					
11	NEXT WAKEUP : 0000/17:49:00				
12	GUIDE TIME : 2003/10/10(FRI)17:49:02				
13	HOST TIME : 2003/10/10(FRI)17:49:02				
14					

D

Line	Display Item	Description
Line 01	VERSION	TV Guide library version number.
Line 02	UPDATE	TV Guide library update number.

E

F

2. EPG RECEPTION CHECK MODE

[Purposes]

Check the reception of each packet for EPG.

[Tool to be used]



Remote control unit supplied
with the unit (VXX2967)

[How to enter]

Press the **[TV GUIDE]**, move cursor up and select "LISTINGS", move cursor right and select "SET UP". Move cursor down and select "Change system settings". Press "753159852". Debug screen will appear. Then push cursor up key twice. "Section Reception - Slicing" screen appears.

[How to quit]

Press the **[RETURN]** / **[TV GUIDE]** / **[HOME MENU]** key.

[Description of the Detail mode]

EPG RECEPTION CHECK MODE

Page 1

	0	1	2	3	4
	0	1	2	3	4
	01234567890123456789012345678901234567				
00	10/10/2003 21:54 [2] Section Reception - Slicing				
01					
02		SinceCold	HostChan	CurrChan	
03	Starts	1630	0	0	
04	Ends	1566	0	0	
05	Drops	9	0	0	
06	NoBufs	0	0	0	
07	AOver	0	0	0	
08	BadPMW	0	0	0	
09	BadBuf	0	0	0	
10	TypeA	0	0	0	
11	ACorr	0	0	0	
12	AErrs	0	0	0	
13	TypeB	0	0	0	
14	BCorr	0	0	0	
15	BErrs	0	0	0	
16	COver	0	0	0	
17	TypeC	1550	0	0	
18	CCor	3	0	0	
19	CErrs	12	0	0	
20	CBad	0	0	0	

Line	Display item	Description
Line 03	Starts	The number of received packet starts.
Line 04	Ends	The number of received packet ends. A completed packet has both a Start and an End.
Line 05	Drops	The number of dropped fields received between a packet Start and packet End.
Line 06-09	NoBufs AOver BadPMW BadBuf	For design use.
Line 10	TypeA	The number of TypeA packet that the unit received.
Line 11	ACorr	The number of TypeA packet that error is corrected.
Line 12	AErrs	The number of TypeA packet that error could not be corrected.
Line 13	TypeB	The number of TypeB packet that the unit received.
Line 14	BCorr	The number of TypeB packet that error is corrected.
Line 15	BErrs	The number of TypeB packet that error could not be corrected.
Line 16	COver	For design use.

A

Line	Display item	Description
Line 17	TypeC	The number of TypeC packet that the unit received.
Line 18	CCorr	The number of TypeC packet that error is corrected.
Line 19	CErrs	The number of TypeC packet that error is not corrected.
Line 20	CBad	For design use.

[Tips]

If the reception is bad, Drop, *Corr, *Errs will be a large percentage of correctly received packets. The TV Guide data feed has built in redundance, small numbers of errors are expected. In this product, the CurrChan column will always be zero, there is no data collection while powered on. The HostChan column values represent all packets received from the TV Guide setup host. The Since Cold colmn represent all packets received from any host since the last System Reset.

B

C

D

E

F

[Purposes]

If symptoms regarding recording/playback of discs and/or the HDD that your customer claimed are difficult to reproduce, they can be reproduced with a long-time test in Aging mode.

[Tools to be used]



Remote control unit for servicing (GGF1381)



Remote control unit supplied with the unit (VXX2963)



Commercially available, recordable DVD-R and DVD-RW discs

[Notes]

- When aging for the DVD-RW and HDD is executed, all recorded data on them will be erased.
- Commands from the remote control unit are accepted during Aging mode.
- If Aging mode is quit using the ESC key, indications on the FL display will return to normal display.
- Cancel timer settings before entering Aging mode.
- Set the recording rate beforehand. It cannot be changed during Aging mode.

[How to enter]

- ① Press the **[DVD]** key to switch to DVD.
- ② Load a recordable disc.
- ③ Select the input function of a recordable source.
- ④ After disc detection is performed, press the **[ESC]** then **[REP.B]** keys on the remote control unit for servicing to enter Aging mode.

[How to quit]

Press the **[ESC]** key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during initialization: The unit stops after initialization is finished. (aging for RW only)
- If the tray is being opened/closed: The unit stops after the tray is opened/closed. (aging for RW only)

[Description of operation]

Aging for the DVD-RW/DVD-R

Aging for the DVD-RW	Aging for the DVD-R
<p>During Aging mode, the following operations are repeated in the order shown below.</p> <ol style="list-style-type: none"> ① The tray opens. ② The tray closes. ③ Initialization ④ Recording for 60 minutes ⑤ Playback for 45 minutes <p>③ Initialization is performed according to the setting specified in "DVD-RW automatic initialization" (accessed by selecting "Unit Setting" then "Option").</p> <p>During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001]</p> <p>If an error is generated, the aging operation stops. Note: Indications on the FL display are retained, and this information is also retained as an OSD.</p>	<p>During Aging mode, the following operations are repeated in the order shown below.</p> <ol style="list-style-type: none"> ① The tray opens. ② The tray closes. ③ Recording for 1 minute ④ Recording pause for 6 minutes ⑤ Recording stops. ⑥ Playback for 1 minute ⑦ Playback pause for 6 minutes ⑧ Playback stops. <p>Note: A continuous test of the above operations is possible for approximately 23 hours.</p> <p>After ② the tray closes, disc detection is performed, and if 99 titles have already been registered, the unit stops there. The number of loops is retained and indicated on the FL display. An error indication is retained as an OSD.</p> <p>During Aging, the number of loops is indicated on the FL display, as shown below. [AGING 0001]</p> <p>If an error is generated, the aging operation stops. Note: Indications on the FL display are retained, and this information is also retained as an OSD.</p> <p>Note: Recording time depends on the recording rate set. For example, if the recording rate is MN32, only up to 60 titles can be registered. Check the setting for recording rate before performing aging.</p>

[Aging for the HDD]

- [How to enter]**
- ① Press the **HDD** key to switch to HDD.
 - ② Press the **ESC** key then the **REP.B** key on the remote control unit for servicing to enter Aging mode.

[How to quit] Press the **ESC** key on the remote control unit for servicing to quit Aging mode and return to Normal mode.

Notes:

- If during recording: Recording is stopped.
- If during playback: Playback is paused.
- If during erasure of all memory data from the HDD, the unit stops after all memory data have been erased.

[Description of operation]

During Aging mode, the following operations are repeated in the order shown below.

- ① Erasure of all the memory data from the HDD
- ② Recording for 60 minutes
- ③ Playback for 60 minutes

[Tips]

During Aging, the number of loops is indicated on the FL display, as shown below.

[AGING 0001]

If an error is generated, the aging operation stops.

Note:

Indications on the FL display are retained, and this information is also retained as an OSD.

How to diagnose failure of the hard disc drive (HDD)

Purpose:

With use of the HDD-diagnostic program contained in the product itself, physical errors on the HDD can be diagnosed. Use this program to diagnose whether or not the HDD is in failure when one of the symptoms indicated below is recognized, or when a failure in the HDD is suspected.

Symptoms of failure in HDD:

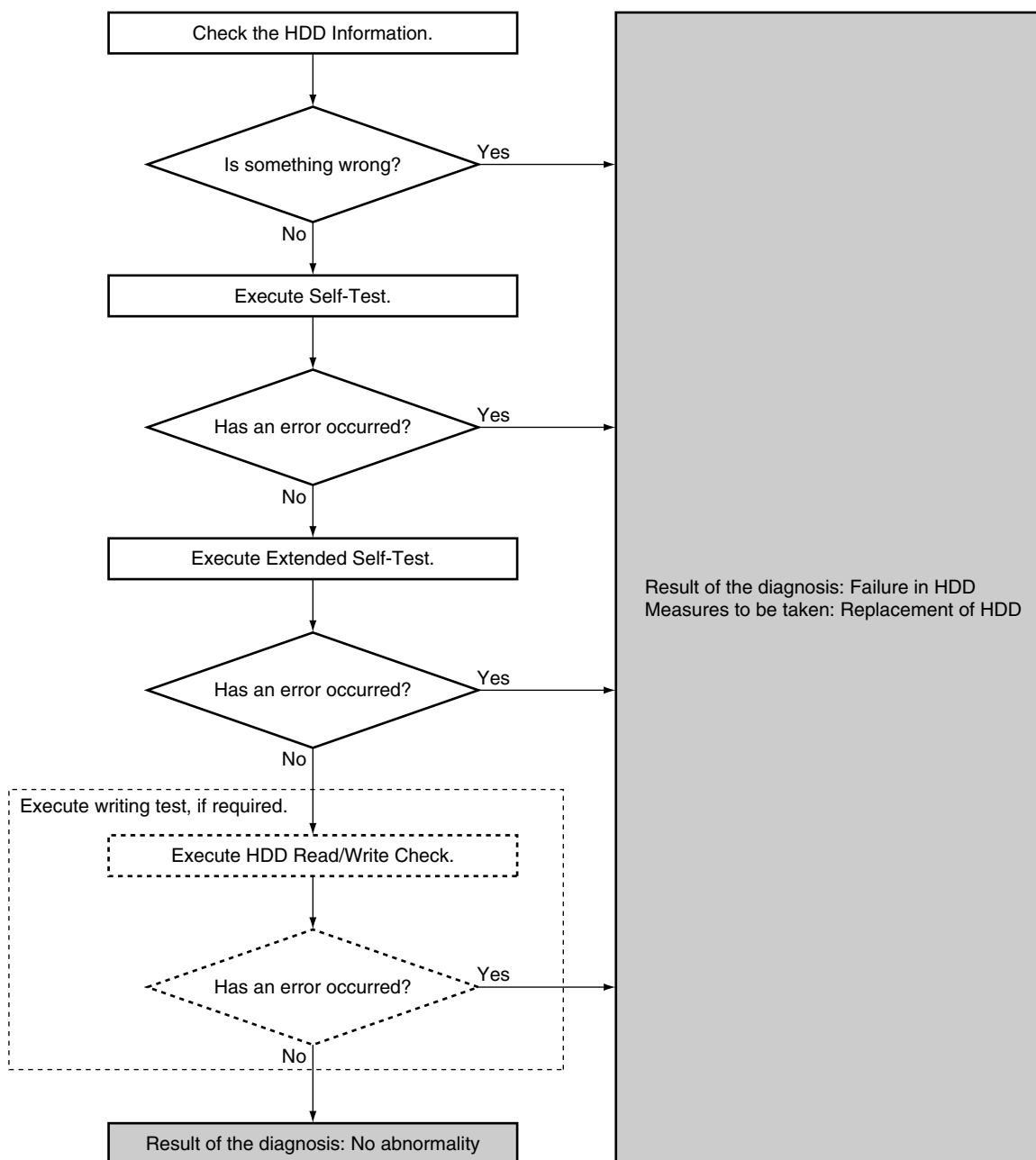
- (1) HDD Error
- (2) Failure in HDD recording or playback
- (3) HDD not recognized

Tool to be used:

Remote control unit for servicing (GGF1381)

1. Flow of HDD diagnosis

(1) Flowchart of HDD diagnosis



(2) Overview of the diagnosis items

HDD Information

This is a display for checking the HDD information, such as the model name of the HDD, continuous power-on time, authentication status, and results of the diagnosis on the end of service life.

SELF TEST

This is a simplified diagnosis for the HDD.
A serious failure in the HDD can be detected with this test.
Time required for testing: Approx. 90 sec.

EXTENDED SELF TEST

This is a reading test across all sectors of the HDD.
Data recorded on the HDD will not be erased, because no writing operation is performed.
Time required for testing: Approx. 3 hours/160 GB

HDD Read / Write Check

This is a writing, reading, and comparing test across all sectors of the HDD.
All data recorded on the HDD will be erased, because all the data are to be overwritten. **Be sure to obtain your client's consent beforehand.**
Time required for testing: Approx. 11 hours/160 GB

2. How to start or terminate the diagnostic program

How to start/terminate the diagnostic program

Use the remote control unit for servicing.

How to start: Press the "ESC", "CX", "0", and "1" keys simultaneously.

How to terminate: Press the "ESC" key.

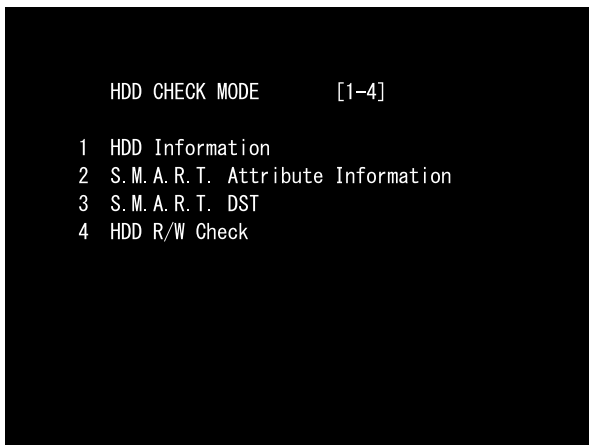
Do NOT perform other operations on the unit while the HDD diagnosis is in progress. Although the diagnostic program is designed to function independently from the unit's functions, an operation on the unit during a diagnosis may cause a malfunction.

The status of the unit recommended during diagnosis is as follows: All stop, no timer recording (including auto-recording), and Input selection to L1-L3.

3. Diagnosis procedures

① Display the menu on the screen.

The menu indicated below is displayed when the diagnostic program is started. To enter each mode, press the corresponding key "1"- "4" on the remote control unit for servicing.



Tests to be executed

- ① HDD Information:
Check of the HDD information
- ② S.M.A.R.T. DST:
Executing a simplified test or a reading test of all data
- ③ HDD R/W Check:
Executing a writing/reading test of all data. All data on the HDD will be erased if this test is executed.

Note: "2. S.M.A.R.T. Attribute . . ." is not to be used.

② Check the HDD information.

Press the "1" key on the remote control unit for servicing. Check the following data:

Model: Is the correct model name of the HDD displayed?

Recog. No: Is a positive value displayed?

SMART threshold: Is "not exceeded" displayed?



Detailed description

- ① Model:
For the correct model name, refer to the display of the unit.
- ② Recog. No:
Positive value: The HDD has been authenticated.
Negative value: The HDD has not been authenticated.
- ③ SMART threshold:
exceeded: The HDD has come to the end or near the end of its service life.
not exceeded: The HDD has not reached the end of its service life.

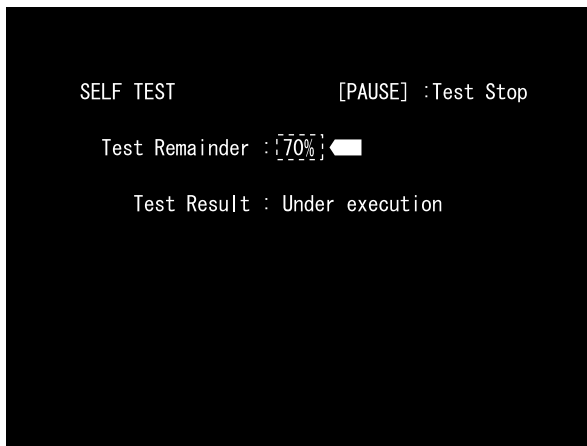
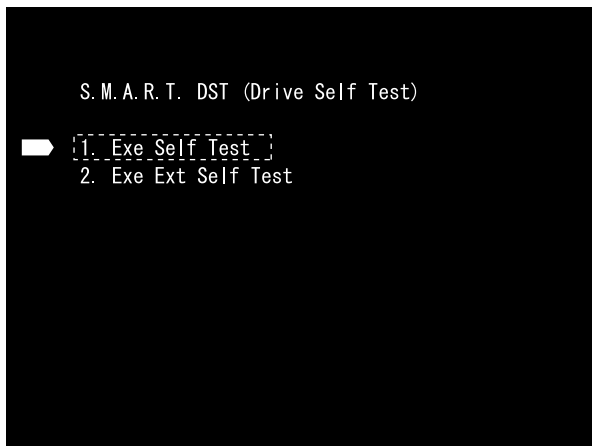
To return to the menu screen, press the "Clear" key.

③ Execute Self-Test.

Press the "3" key on the remote control unit for servicing while the menu screen is displayed.

When the following screen is displayed, press the "1" key to start the Self-Test.

A



B

The progress of the test is displayed on the screen. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%.

Check whether or not an error has occurred after the test is finished.

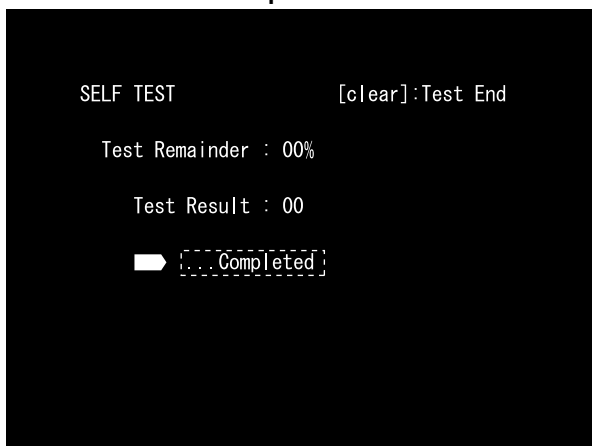
Diagnosis results

- Without an error: "... Completed" is displayed. Then, proceed to the Extended Self-Test.
- With an error: "... Error" is displayed. Look at the number in Test Result. If the place value for tens is 1 or 2, execute the Self-Test again. If it is from 3 to 7, the HDD must be replaced.

Note: If the result of the second test is the same, replacement of the HDD is required.

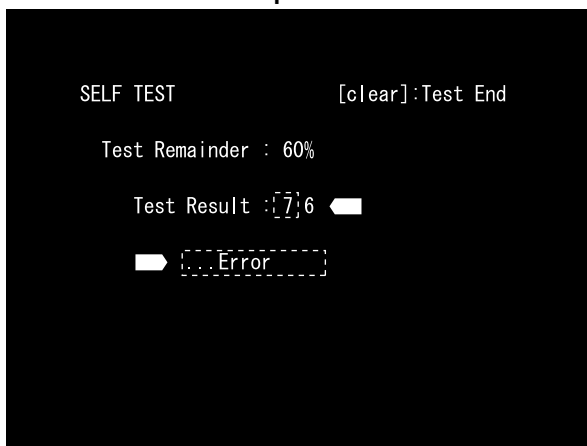
C

Example: No error



D

Example: With an error

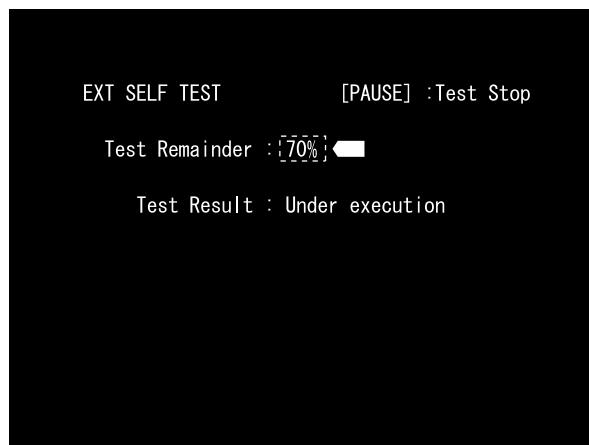
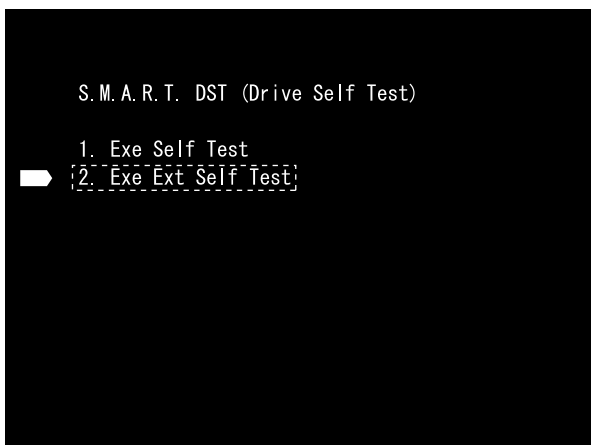


E

To return to the menu screen, press the "Clear" key.

F

④ Execute the Ext (Extended) Self-Test.



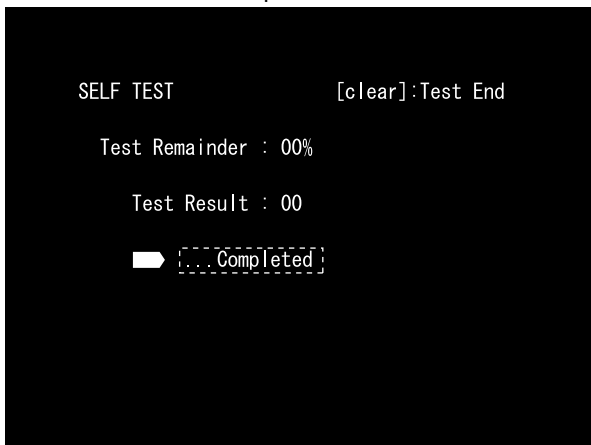
Press the "3" key while the menu screen is displayed, then the "2" key on the remote control unit for servicing. The Extended Self-Test starts. The percentage remaining of the test is displayed on the screen, and the test is terminated when the percentage reaches 00%. Check whether or not an error has occurred after the test is finished.

Diagnosis results

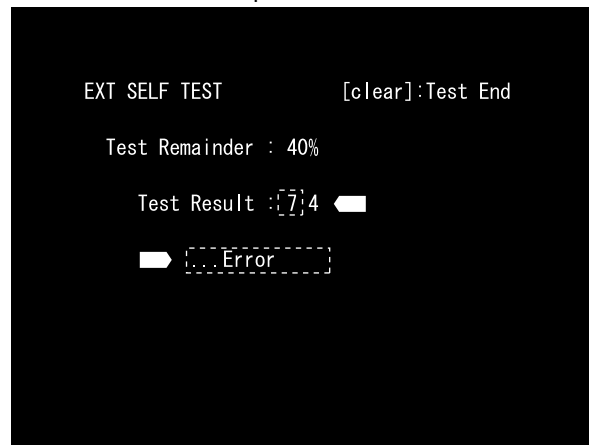
- Without an error: "... Completed" is displayed.
If no error occurs up until this stage, HDD operations are normal except for writing operations.
If the unit has a failure in HDD playback, a block other than the HDD may be in failure.
If the unit's failure is in HDD recording, however, the next HDD Read/Write Check must be executed to test writing operations.
- With an error: "... Error" is displayed.
Look at the number in Test Result.
If the place value for tens is 1 or 2, execute the Ext Self-Test again.
If it is from 3 to 7, the HDD must be replaced.

Note: If the result of the second test is the same, replacement of the HDD is required.

Example: No error



Example: With an error



To return to the menu screen, press the "Clear" key.

⑤ Execute the HDD R/W Check.

Before executing this test, **be sure to obtain your client's consent for erasure of HDD data.**

Press the "4" key while the menu screen is displayed then the "SKIP ►►" key to start the HDD R/W Check.

To stop executing the test (OFF) while it is in progress, press the "SKIP ◄◄" key.

HDD R/W CHECK OFF | ON

Caution! This test overwrites all sectors.

Write Error : 0

Read Error : 0

Compare Error : 0

Current LBA : 0

Max LBA : 160086528

Progress : 0 %

Remain Time : ---h --m --s

The display on the left indicates the progress of the test.

The percentage of the test progress is displayed on the screen, and the test is finished when the percentage reaches 100%.

HDD R/W CHECK OFF | ON

Caution! This test overwrites all sectors.

Write Error : 0

Read Error : 0

Compare Error : 0

Current LBA : 17940484

Max LBA : 160086528

Progress : 11 %

Remain Time : 5h 59m 11s

Detailed description on each item on the screen

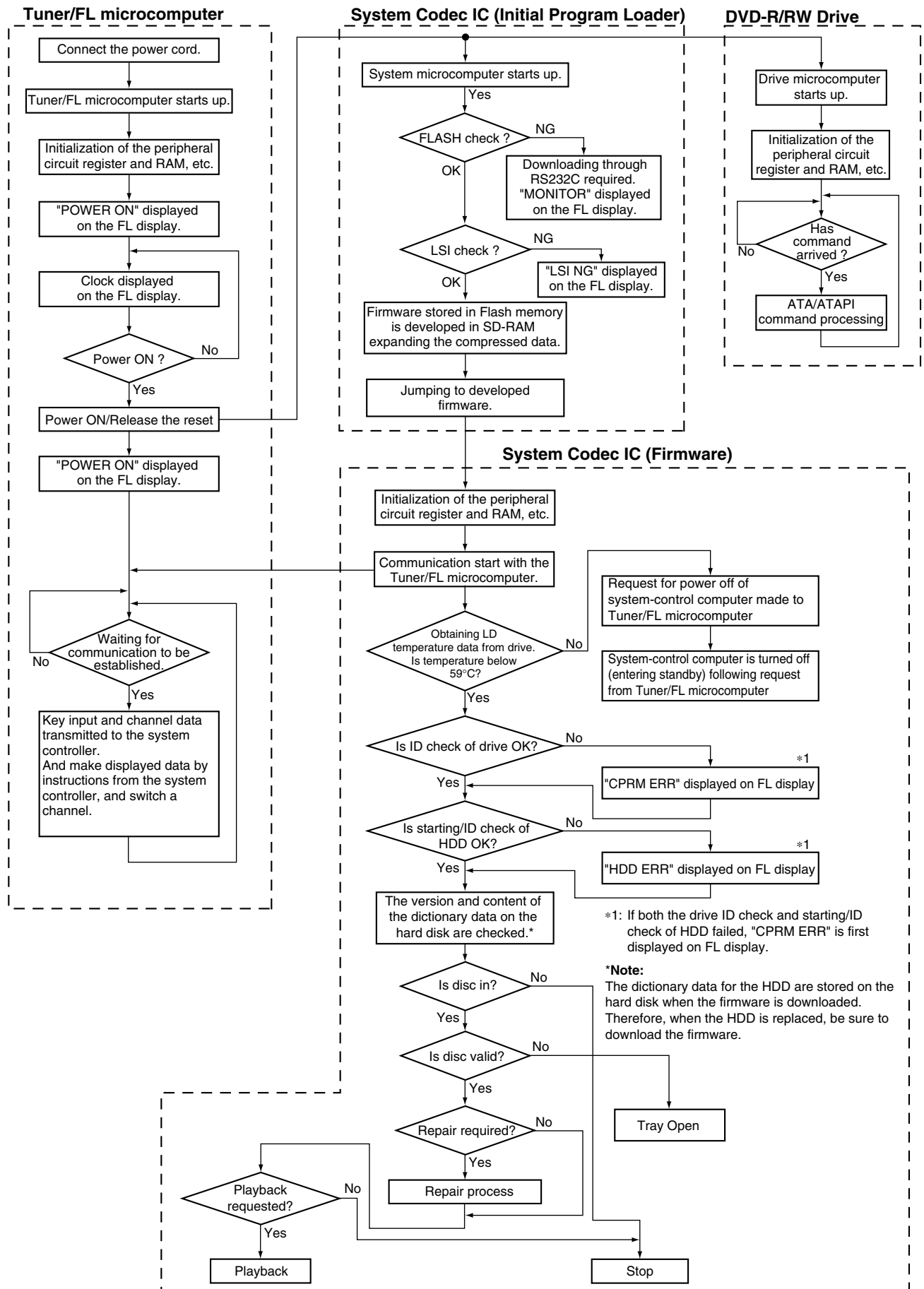
- Write Error: Number of write errors
 - Read Error: Number of read errors
 - Compare Error: Number of comparison errors
 - Current LBA: The address during testing
 - Max LBA: Highest address number of the HDD
 - Progress: Percentage of test progress (%)
 - Remain Time: Estimated time required for finishing the test across all sectors.
- Estimated time: 11 hours/160 GB

Diagnosis results

- If no error occurs in any of the Write/Read/Compare items, the HDD is in normal condition and is not required to be replaced. A block other than the HDD is in failure.
- If any error occurs, the HDD must be replaced.

To terminate the diagnostic program, press the "ESC" key.

7.1.10 SETUP SEQUENCE



7.1.11 DISASSEMBLY

Note 1: Do NOT look directly into the pickup lens. The laser beam may cause eye injury.

Note 2: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Note 3: For performing the diagnosis shown below, the following jigs for service is required:

- Emergency disc ejection rod (GGF1529)
- Flexible cable for service (GGD1170), (VKP2291), (GGD1437)
- Extension board (GGF1532 (A)), (GGF1532 (B))

Diagnosis of MAIN Assy

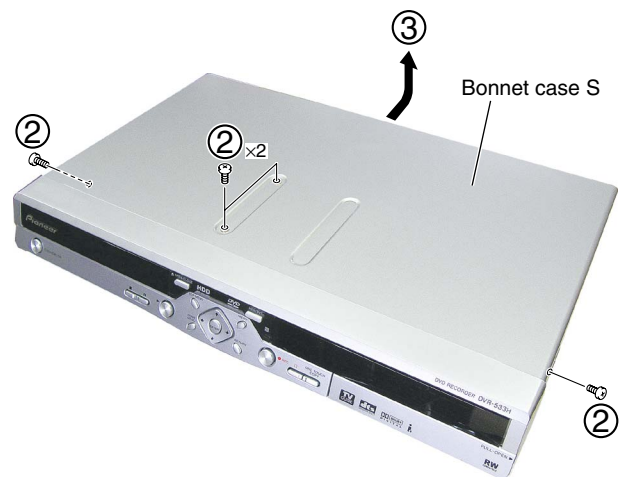
1 Bonnet Case S

- ① Remove the four screws.



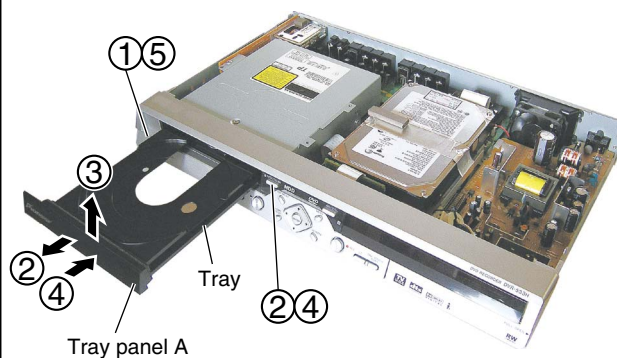
- ② Remove the four screws.

- ③ Remove the bonnet case S.



2 Tray Panel A

- ① Press the ⏻ STANDBY/ON button to turn on the power.
 ② Press the ▲ OPEN/CLOSE button to open the tray.
 ③ Remove the tray panel A.
 ④ Press the ▲ OPEN/CLOSE button to close the tray.
 ⑤ Press the ⏻ STANDBY/ON button to turn off the power.

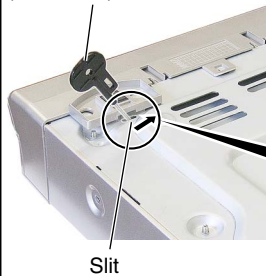


● How to open the tray when the power cannot be turned on

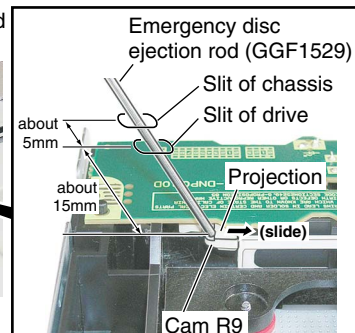
When the tray cannot be opened because the power cannot be turned on, it can be opened using the emergency disc ejection rod (GGF1529). (A long, thin rod about 1 mm in diameter can be used in place of the rod.)

Insert the rod through the slit at the bottom of the unit and slide the projection for cam R9 in the direction of the arrow, using the rod. When the tray is popped out a little, pull it out by hand. Find the projection by inserting the rod through the slit by about 20 mm, as the projection is not visible from the outside. If the insertion of the rod exceeds 20 mm, you cannot catch the projection.

Emergency disc ejection rod (GGF1529)



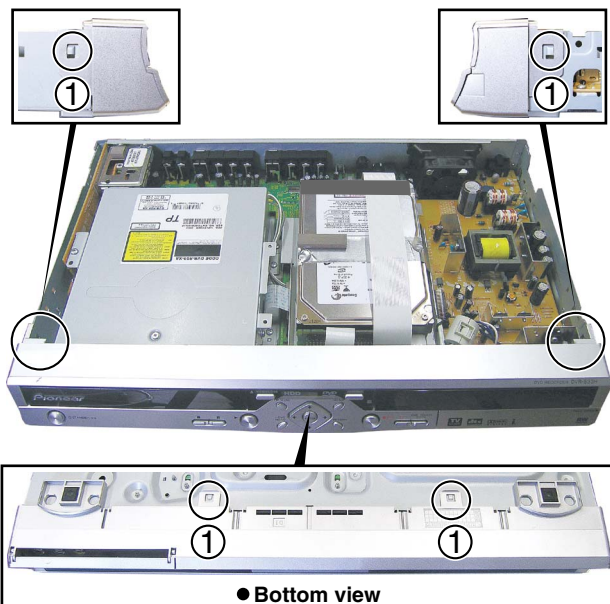
● Bottom view



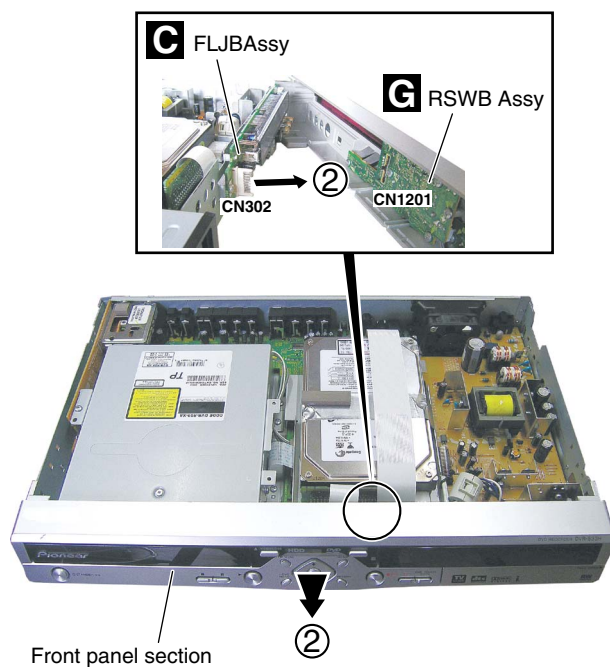
● Bottom view

3 Front Panel Section

- ① Unhook the four hooks.



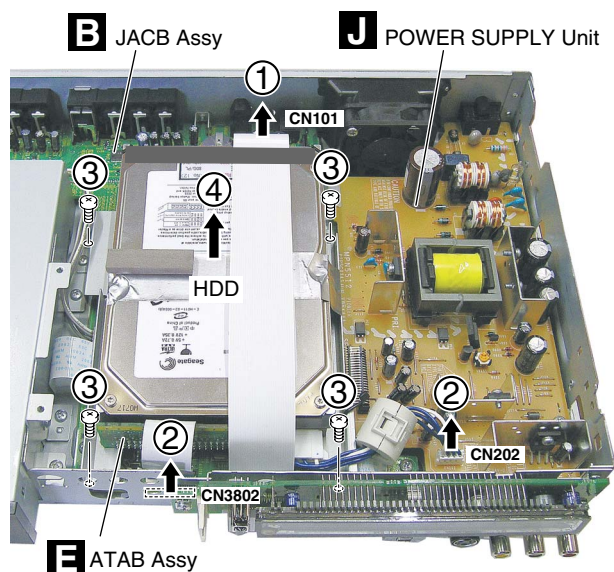
- ② Remove the front panel section while disconnect the connector.



4 HDD and DRIVE Assy R9R

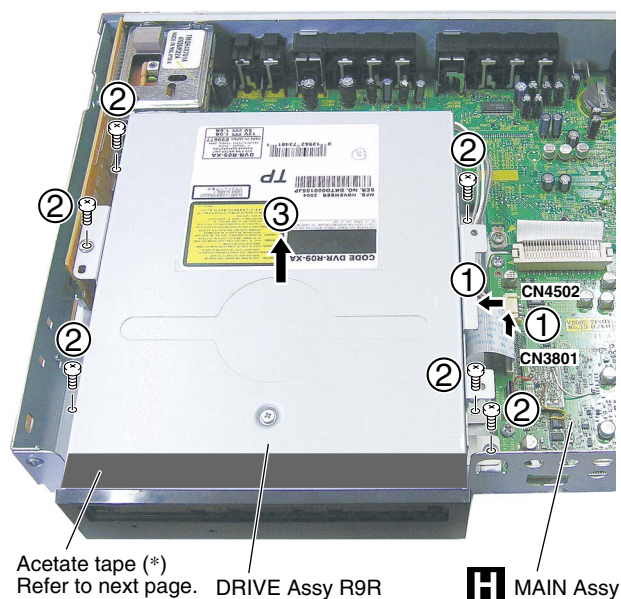
• HDD

- ① Disconnect the connector and tape.
- ② Disconnect the flexible cable and connectors.
- ③ Remove the four screws.
- ④ Remove the HDD.



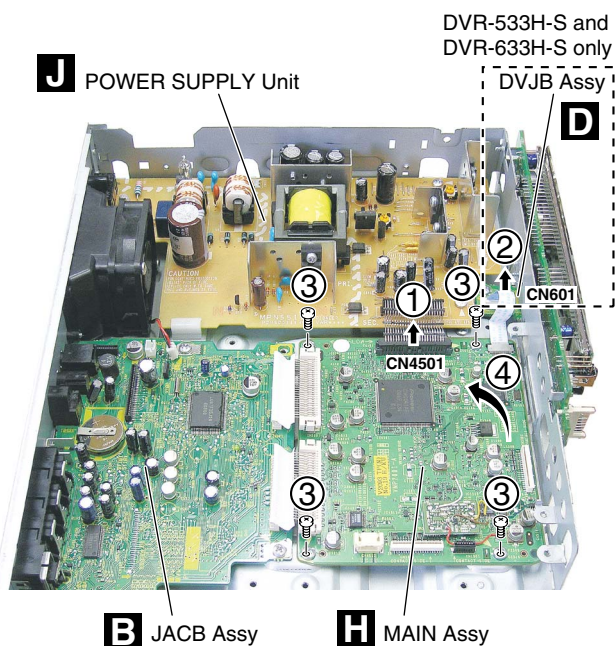
• DRIVE Assy R9R

- ① Disconnect the flexible cable and connectors.
- ② Remove the six screws.
- ③ Remove the DRIVE Assy R9R.



5 MAIN Assy

- ① Disconnect the connector.
- ② Disconnect the flexible cable.
(DVR-533H-S and DVR-633H-S only)
- ③ Remove the four screws.
- ④ Stand the MAIN Assy.



Note:

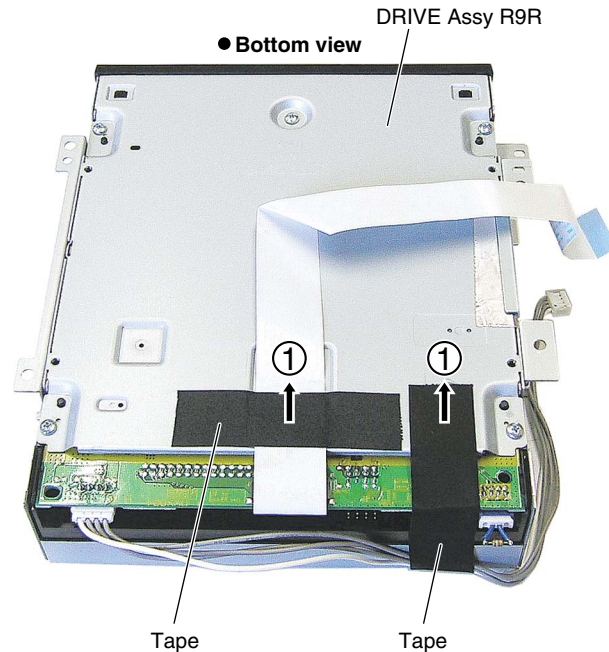
Acetate tape (*) (former page)

When replacing the DRIVE Assy, remove the acetate tape from the old Assy and adhere it to the new Assy. Without the acetate tape, the performance of the drive cannot be assured.

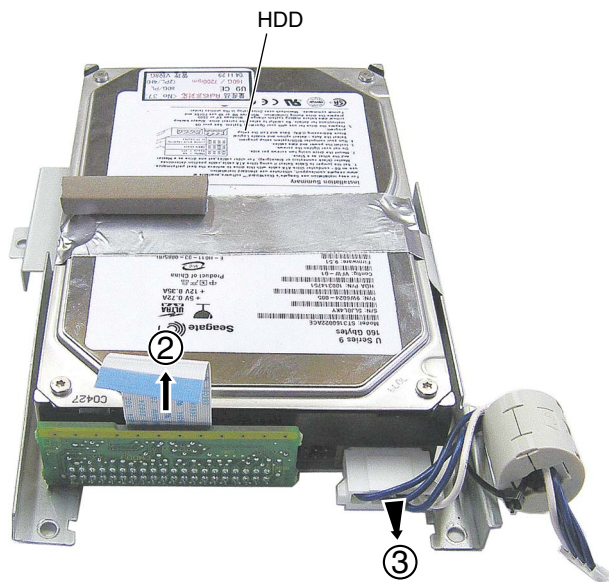
If the tape cannot be reused, be sure to use acetate tape for service (GYH1001).

6 Diagnosis

- ① Remove the two tapes.



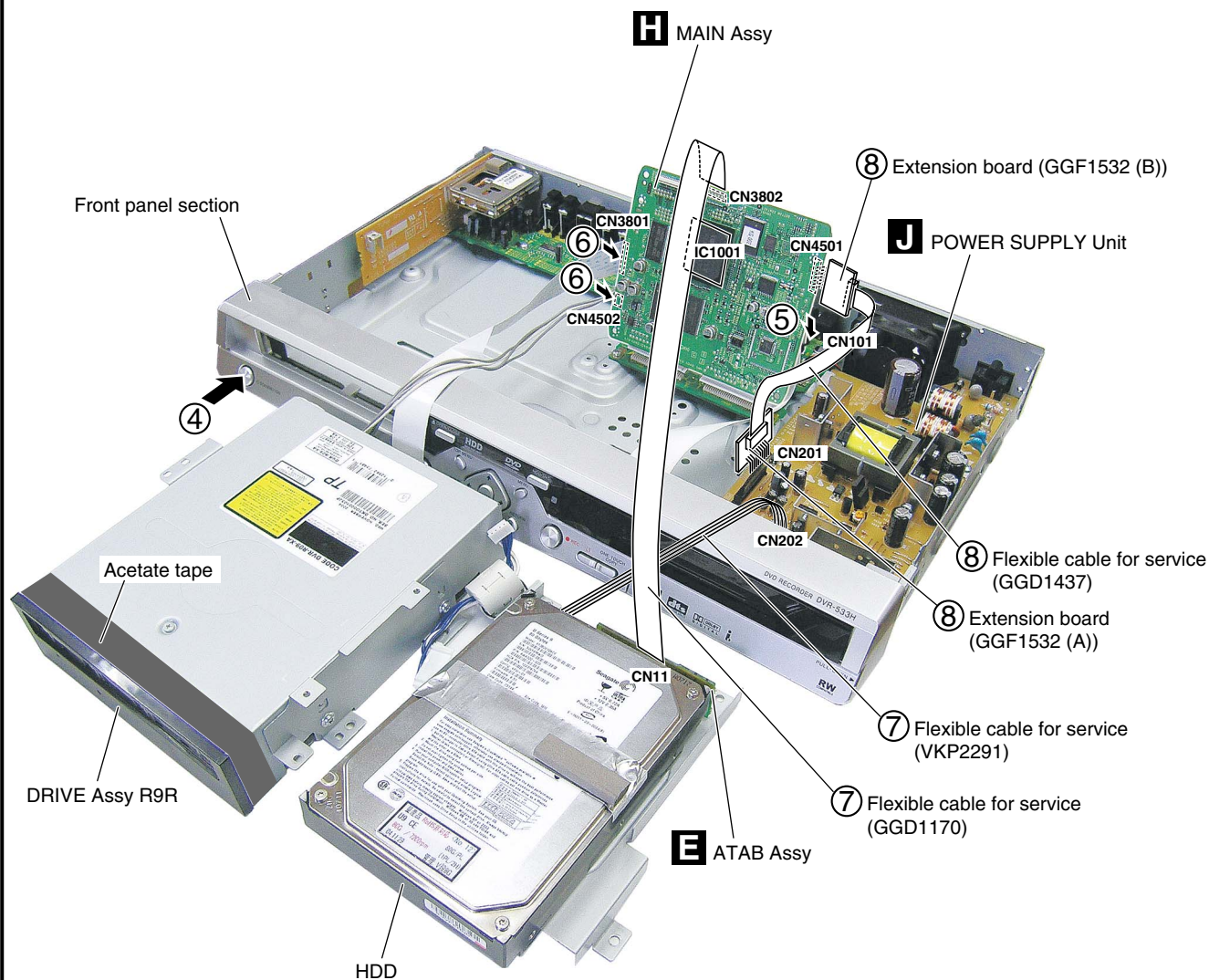
- ② Disconnect the flexible cable.
- ③ Disconnect the connector.



- ④ Reassembling the front panel section.
- ⑤ Connect the flexible cable.
- ⑥ Connect the connector and flexible cables from the DRIVE Assy R9R.
- ⑦ Connect the two flexible cables for service from the HDD.
- ⑧ Connect the two extension boards and flexible cable for service.
- ⑨ Arrange the unit as shown in the photo below.

Caution :

Main IC (IC1001) on the MAIN Assy will be heated to around 80 degrees celsius.
Be careful when works.

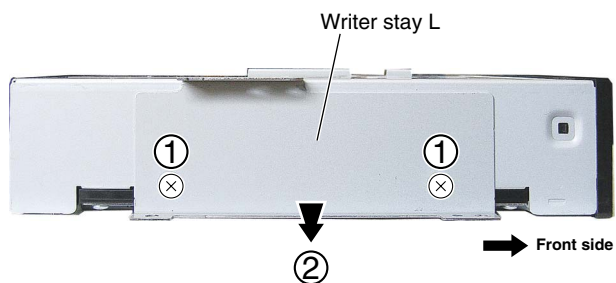


Diagnosis

Cleanning the Pickup Lens

A

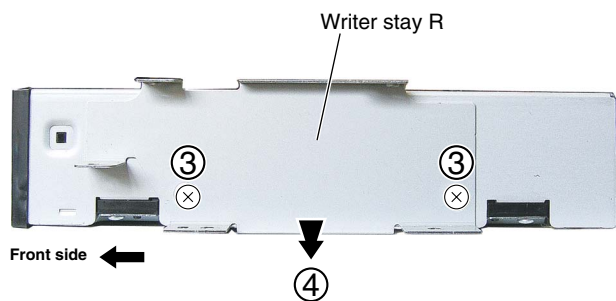
- ① Remove the two screws.
- ② Remove the writer stay L.



B

C

- ③ Remove the two screws.
- ④ Remove the writer stay R.

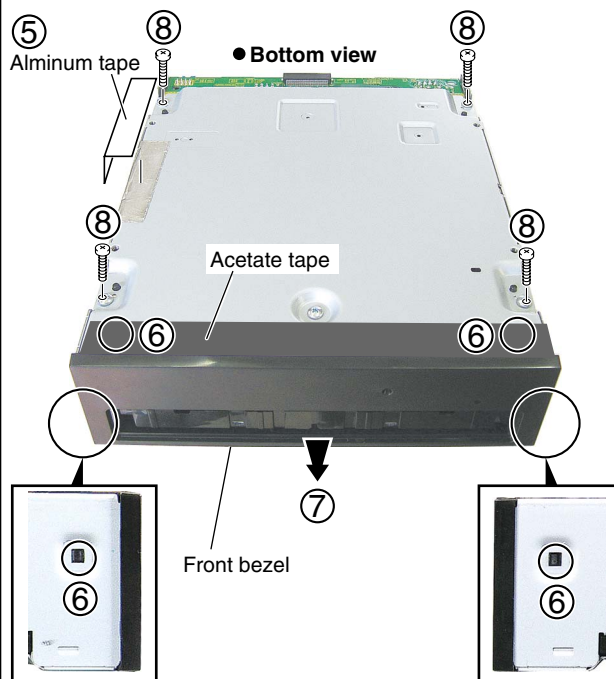


D

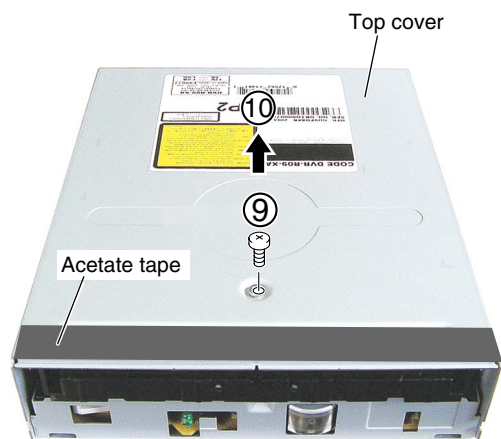
E

F

- ⑤ Remove the alminum tape.
- ⑥ Unhook the four hooks.
- ⑦ Remove the front bezel.
- ⑧ Remove the four screws.

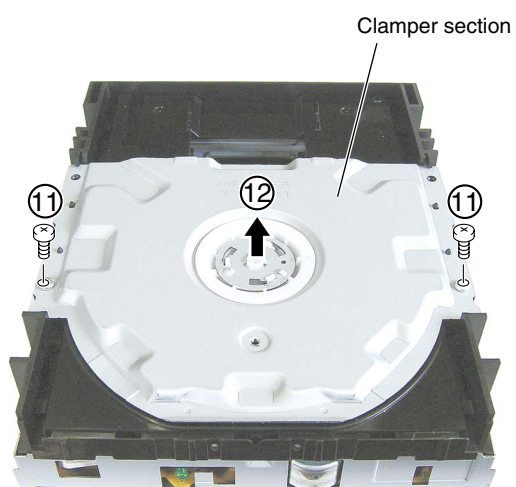


- ⑨ Remove the one screw.
- ⑩ Remove the top cover.



⑪ Remove the two screws.

⑫ Remove the clamper section.

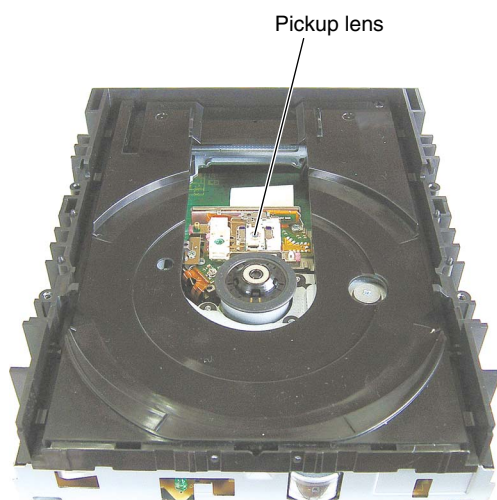


⑬ Clean the pickup lens.



Before shipment, be sure to clean the pickup lens, using the following cleaning materials:

Cleaning liquid : GEM1004
Cleaning paper : GED-008



7.2 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

• List of IC

PMC002A8, CM0041BF, R8A34011BG-K, BU4828F, R1170S331B, PQ035ZN01ZPH, NJM2861F33, BA25F18WHFP, BD3823FV, LA73031V

■ PMC002A8 (JCKB ASSY : IC101)

• TUNER Microcomputer

• Pin Function

No.	Pin Name	Signal Name	I/O	Function	Active
1	PA3/S08	FLDATA	O	Communication line with FL Driver	
2	PA4/SI8/SB8	FLSTB	O	Ccommunication strobe line with FL Driver	
3	PA5/SCK8	FLCLK	O	Communication clock with FL Driver	
4	P70/INTO/TOCLP	WDT	I	WDT for detection of u-com in the state of out of control	
5	P71/INT1/TOHCP	ACDET	I	Detection of AC power	
6	P72/INT2/TOIN/TOLCP	HS_MTMOT	I	Handshaking of system control u-com communication	
7	P73/INT3/TOIN/TOHCP	IR	I	Pulse input of remote control	
8	RES#	XRESET	I	Reset input	
9	XT1	XT1	I	Connection of sub clock	
10	XT2	XT2	O	Connection of sub clock	
11	VSS1	GND	—		
12	CF1	CF1	I	Connection of main clock	
13	CF2	CF2	O	Connection of main clock	
14	VDD1	VDD1	—		
15	P80/AN0	MODEL1	Analog In	Input #1 for model type judgement	
16	P81/AN1	MODEL2	Analog In	Input #1 for model type judgement	
17	P82/AN2	KEY1	Analog In	Main unit key input #1	
18	P83/AN3	KEY2	Analog In	Main unit key input #2	
19	P84/AN4	KEY3	Analog In	Main unit key input #3	
20	P85/AN5	AGC	Analog In	AGC voltage input from tuner	
21	P86/AN6	BATTERY	Analog In	Input for battery voltage checking	
22	P87/AN7	FUNC	Analog In		
23	P10/SO0	SDET3	I	Detection of S tereminal #3 connection	
24	P11/SI0/SB0	SDET2	I	Detection of S tereminal #2 connection	
25	P12/SCK0	SDET1	I	Detection of S tereminal #1 connection	
26	P13/SO1	AVLOUT	O	Input for battery voltage checking	
27	P14/SI1/SB1	SDA	Nch O/D	I2C communication (data)	
28	P15/SCK1	SCL	Nch O/D	I2C communication (clock)	
29	P16/T1PWML	XSYSRST	O	IC reset signal of whole system	
30	P17/T1PWMH/BUZ	XVDECRST	O	Reset signal to VDEC2	
31	PE0/AN12	MUTEV	O	CVBS, Y/C mute signal for video driver IC	
32	PE1/AN13	COMPMUTE	O	Y/Cb/Cr mute signal for video driver IC	
33	PE2/AN14	AMUTE1	O	Audio mute signal of ouput stage	
34	PE3/AN15	INSEL1	O	Input selection of video selector	
35	PE4	INSEL2	O	Input selection of video selector	
36	PE5	INSEL3	O	Input selection of video selector	
37	PE6	YCSEL	O	CVBS or Y/C selection of video selector	
38	PE7	STBYVS	O	Standby mode selection of video selector	
39	VSS4	GND	—		
40	VDD4	VDD4	—		

No.	Pin Name	Signal Name	I/O	Function	Active
41	PF0	LET	O	Letter-box output superimposed signal	
42	PF1	SQU	O	Squeeze output superimposed signal	
43	PF2	RGBSEL	O	Input RGB selection	
44	PF3	XTUMODE	O		
45	PF4	S1	O	S1/S2 selection signal	
46	PF5	XLPTHU	O		
47	PF6	PSMUTE	O		
48	PF7	XAVLTH	O	Through selection of AV.Link communication line	
49	SI2P0/SO2	NC	O		
50	SI2P1/SI2/SB2	NC	O		
51	SI2P2/SCK2	NC	O		
52	SI2P3/SCK2O	RFTHRU	O	RF through selection of tuner	
53	PWM1	NC	O		
54	PWM0	FANCTRL	O	Rotaion speed control of radiating fan	
55	VDD2	VDD2	–		
56	VSS2	GND	–		
57	PO0	P_CONT2	O		
58	PO1	MUTECTL	O		
59	PO2	EPGEXT	O	Equaliser selection of slicer input video	
60	PO3	TUON	O	Power control for tuner section	
61	PO4	SWVION	O	Power control for tvideo section	
62	PO5/CKO	P_CONT	O	Power control for whole system	
63	PO6/T6O	FLON	O	Power control for FL tube	
64	PO7/T7O	XP_SAVE	O		
65	P20/INT4/T1IN/TOCLP/TOHCP/INT6	STATCHG	I	Detection of audio multi-plex status change of MSP	
66	P21/INT4/T1IN/TOCLP/TOHCP	J_CLOCK	I	Input audio for Just Clock	
67	P22/INT4/T1IN/TOCLP/TOHCP/HCTR	CSYNCIN	I	C-sync for Auto-Rec	
68	P23/INT4/T1IN/TOCLP/TOHCP	XCHECKER	I	Detection of attaching the unit checker	
69	P24/INT5/T1IN/TOCLP/TOHCP/INT7	MRST	I	Detection of abnormality of Main Board power	
70	P25/INT5/T1IN/TOCLP/TOHCP	AVLIN	I	Input line of NexTViewLink	
71	P26/INT5/T1IN/TOCLP/TOHCP	NC	O		
72	P27/INT5/T1IN/TOCLP/TOHCP	BLANKIN	I		
73	P30/PWM4	LEDDVD	O	DVD indicator	
74	P31/PWM5	LEDHDD	O	HDD indicator	
75	P32/UTX1	TXD1	O	Transmission for RS232-C terminal	
76	P33/URX1	RXD1	I	Reception for RS232-C terminal	
77	P34/UTX2	TXD2	O	Reservation	
78	P35/URX2	RXD2	I	Reservation	
79	P36	HS_TTOM	O	Handshaking of sys con SYS → Tuner	
80	VDDODA	VDDODA	–		

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No.	Pin Name	Signal Name	I/O	Function	Active
81	PB6/CVD/CSYNC	CVBSIN	I	Input video for data slicer	
82	VSSVCO	GND	–		
83	PB4/FILTSLC	FILTSLC	I	External filter for slicer PLL	
84	VDDVCO	VDDVCO	–		
85	PB2	NC	O		
86	PB1	NC	O		
87	PB0/DS1FLD	NC	O		
88	VSS3	GND	–		
89	VDD3	VDD3	–		
90	PC7/DBGP2	DBGP2	Nch O/D	Control port for on-chip debugger	
91	PC6/DBGP1	DBGP1	Nch O/D	Control port for on-chip debugger	
92	PC5/DBGP0	DBGP0	Nch O/D	Control port for on-chip debugger	
93	PC4/AN10	NC	O		
94	PC3/AN11	NC	O		
95	PC2/AN9	NC	O		
96	PC1/AN8	NC	O		
97	PC0/OCSYNC	NC	O		
98	PA0/SO7	SD_TTOM	O	Communication data line of sys con Tuner → Sys	
99	PA1/SI7/SB7	SD_MTOT	I	Communication data line of sys con Sys → Tuner	
100	PA2/SCK7	SCK_MTOT	I	Communication clock of sys con Sys → Tuner	

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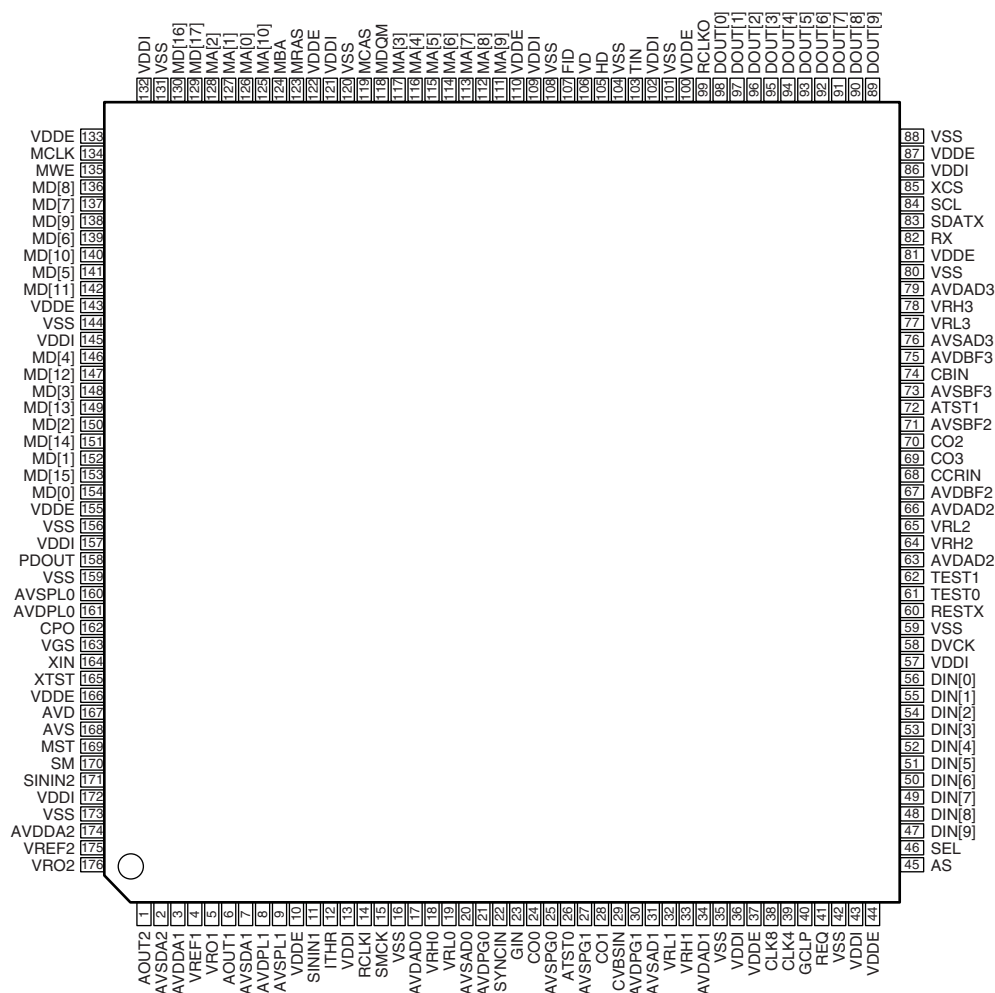
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■ CM0041BF (MAIN ASSY: IC4201)

- Video Decoder

● **Pin Arrangement (Top view)**



- **Pin Function**

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	AOUT2	O	DAC2 analog signal output	9	AVSPL1	P	PLL1 GND
2	AVSDA2	P	DAC2 GND	10	VDDE	P	I/O power supply 1
3	AVDDA1	P	DAC1 power supply	11	SININ1	I	PLL1 reference input
4	VREF1	I	DAC1 reference voltage input	12	ITHR	I	Penetration current test pin
5	VRO1	O	DAC1 inward current setting pin	13	VDDI	P	CORE power supply 1
6	AOUT1	O	DAC1 analog signal output	14	RCLKI	I	Resampling clock input
7	AVSDA1	P	DAC1 GND	15	SMCK	I	SCAN test pin
8	AVDPL1	P	PLL1 power supply	16	VSS	P	Digital GND 1

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No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
17	AVDAD0	P	ADC0 power supply	57	VDDI	P	CORE power supply 4
18	VRH0	I	ADC0 top reference electric potential	58	DVCK	I	DVIF clock input
19	VRL0	I	ADC0 bottom reference electric potential	59	VSS	P	Digital GND4
20	AVSAD0	P	ADC0 GND	60	RESETX	I	System reset input
21	AVDPG0	P	PGA0, CLP0, OFFC power supply	61	TEST0	I	Test mode setting 0
22	SYNCIN	I	ADC0 analog input	62	TEST1	I	Test mode setting 1
23	GIN	I	ADC0 analog input	63	AVDAD2	P	ADC2 power supply
24	CO0	O	PGA0 capacitor connection pin (REF0-synctip)	64	VRH2	I	ADC2 top reference electric potential
25	AVSPG0	P	PGA0, CLP0, OFFC GND	65	VRL2	I	ADC2 bottom reference electric potential
26	ATST0	I	Analog test pin	66	AVSAD2	P	ADC2 GND
27	AVSPG1	P	PGA1, CLP1, OFFC GND	67	AVDBF2	P	BUF2.CLP2 power supply
28	CO1	O	PGA1 capacitor connection pin (REF1-synctip)	68	CCRIN	I	ADC2 analog input
29	CVBSIN	I	ADC1 analog input	69	CO3	O	PGA3 capacitor connection pin
30	AVDPG1	P	PGA1, CLP1, OFFC power supply	70	CO2	O	BUF2 capacitor connection pin
31	AVSAD1	P	ADC1 GND	71	AVSBF2	P	BUF2, CLP2 GND
32	VRL1	I	ADC1 bottom reference electric potential	72	ATST1	I	Analog test pin
33	VRH1	I	ADC1 top reference electric potential	73	AVSBF3	P	BUF3, BUFF GND
34	AVDAD1	P	ADC1 power supply	74	CBIN	I	ADC3 analog input
35	VSS	P	Digital GND2	75	AVDBF3	P	BUF3.BUFF power supply
36	VDDI	P	CORE power supply 2	76	AVSAD3	P	ADC3 GND
37	VDDE	P	I/O power supply 2	77	VRL3	I	ADC3 bottom reference electric potential
38	CLK8	O	8fsc clock output for GCR	78	VRH3	I	ADC3 top reference electric potential
39	CLK4	O	4fsc clock output for GCR	79	AVDAD3	P	ADC3 power supply
40	GCLP	I/O	Clamp pulse output for GCR/FB input	80	VSS	P	Digital GND5
41	REQ	O	Interrupt signal output	81	VDDE	P	I/O power supply 4
42	VSS	P	Digital GND3	82	RX	O	--
43	VDDI	P	CORE power supply 3	83	SDATX	I/O	Data for serial communication (I2C: SDA)
44	VDDE	P	I/O power supply 3	84	SCL	I	Clock for serial communication (I2C: SCL)
45	AS	I	Address select input	85	XCS	I	--
46	SEL	I	Serial communication mode setting	86	VDDI	P	CORE power supply 5
47	DIN[9]	I	Digital data input (MSB)	87	VDDE	P	I/O power supply 5
48	DIN[8]	I	Digital data input	88	VSS	P	Digital GND6
49	DIN[7]	I	Digital data input	89	DOUT[9]	O	Digital data output (MSB)
50	DIN[6]	I	Digital data input	90	DOUT[8]	O	Digital data output
51	DIN[5]	I	Digital data input	91	DOUT[7]	O	Digital data output
52	DIN[4]	I	Digital data input	92	DOUT[6]	O	Digital data output
53	DIN[3]	I	Digital data input	93	DOUT[5]	O	Digital data output
54	DIN[2]	I	Digital data input	94	DOUT[4]	O	Digital data output
55	DIN[1]	I	Digital data input	95	DOUT[3]	O	Digital data output
56	DIN[0]	I	Digital data input (LSB)	96	DOUT[2]	O	Digital data output

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
97	DOUT[1]	O	Digital data output	137	MD[7]	I/O	SDRAM data bus
98	DOUT[0]	O	Digital data output (LSB)	138	MD[9]	I/O	SDRAM data bus
99	RCLKO	O	Resampling clock output	139	MD[6]	I/O	SDRAM data bus
100	VDDE	P	I/O power supply 6	140	MD[10]	I/O	SDRAM data bus
101	VSS	P	Digital GND7	141	MD[5]	I/O	SDRAM data bus
102	VDDI	P	CORE power supply 6	142	MD[11]	I/O	SDRAM data bus
103	TIN	I	Control input of data output timing	143	VDDE	P	I/O power supply 10
104	VSS	P	Digital GND8	144	VSS	P	Digital GND12
105	HD	O	H drive output	145	VDDI	P	CORE power supply 10
106	VD	I/O	V drive output (MD[19])	146	MD[4]	I/O	SDRAM data bus
107	FID	I/O	Field ID output (MD[18])	147	MD[12]	I/O	SDRAM data bus
108	VSS	P	Digital GND9	148	MD[3]	I/O	SDRAM data bus
109	VDDI	P	CORE power supply 7	149	MD[13]	I/O	SDRAM data bus
110	VDDE	P	I/O power supply 7	150	MD[2]	I/O	SDRAM data bus
111	MA[9]	O	SDRAM address output	151	MD[14]	I/O	SDRAM data bus
112	MA[8]	O	SDRAM address output	152	MD[1]	I/O	SDRAM data bus
113	MA[7]	O	SDRAM address output	153	MD[15]	I/O	SDRAM data bus (MSB)
114	MA[6]	O	SDRAM address output	154	MD[0]	I/O	SDRAM data bus (LSB)
115	MA[5]	O	SDRAM address output	155	VDDE	P	I/O power supply 11
116	MA[4]	O	SDRAM address output	156	VSS	P	Digital GND13
117	MA[3]	O	SDRAM address output	157	VDDI	P	CORE power supply 11
118	MDQM	O	SDRAM DQM output	158	PDOUT	O	Phase comparison output
119	MCAS	O	SDRAM CAS output	159	VSS	P	Digital GND14
120	VSS	P	Digital GND10	160	AVSPL0	P	PLL0 GND
121	VDDI	P	CORE power supply 8	161	AVDPL0	P	PLL0 power supply
122	VDDE	P	I/O power supply 8	162	CPO	O	PLL0 Charge Pump output
123	MRAS	O	SDRAM RAS output	163	VGS	I	GND for PLL0 guard band
124	MBA	O	SDRAM bank address output	164	XIN	I	27MHz clock input
125	MA[10]	O	SDRAM address output (MSB)	165	XTST	I	SCAN test pin
126	MA[0]	O	SDRAM address output (LSB)	166	VDDE	P	I/O power supply 12
127	MA[1]	O	SDRAM address output	167	AVD	P	PLL2 power supply
128	MA[2]	O	SDRAM address output	168	AVS	P	PLL2 GND
129	MD[17]	I/O	(SDRAM data bus)	169	MST	I	SCAN test pin
130	MD[16]	I/O	(SDRAM data bus)	170	SM	I	SCAN test pin
131	VSS	P	Digital GND11	171	SININ2	I	PLL2 reference input
132	VDDI	P	CORE power supply 9	172	VDDI	P	CORE power supply 12
133	VDDE	P	I/O power supply 9	173	VSS	P	Digital GND15
134	MCLK	O	SDRAM clock output	174	AVDDA2	P	DAC2 power supply
135	MWE	O	SDRAM WE output	175	VREF2	I	DAC2 reference voltage input
136	MD[8]	I/O	SDRAM data bus	176	VRO2	O	DAC2 inward current setting pin

■ R8A34011BG-K (MAIN ASSY : IC1001)
• System Codec

A

● Block Diagram

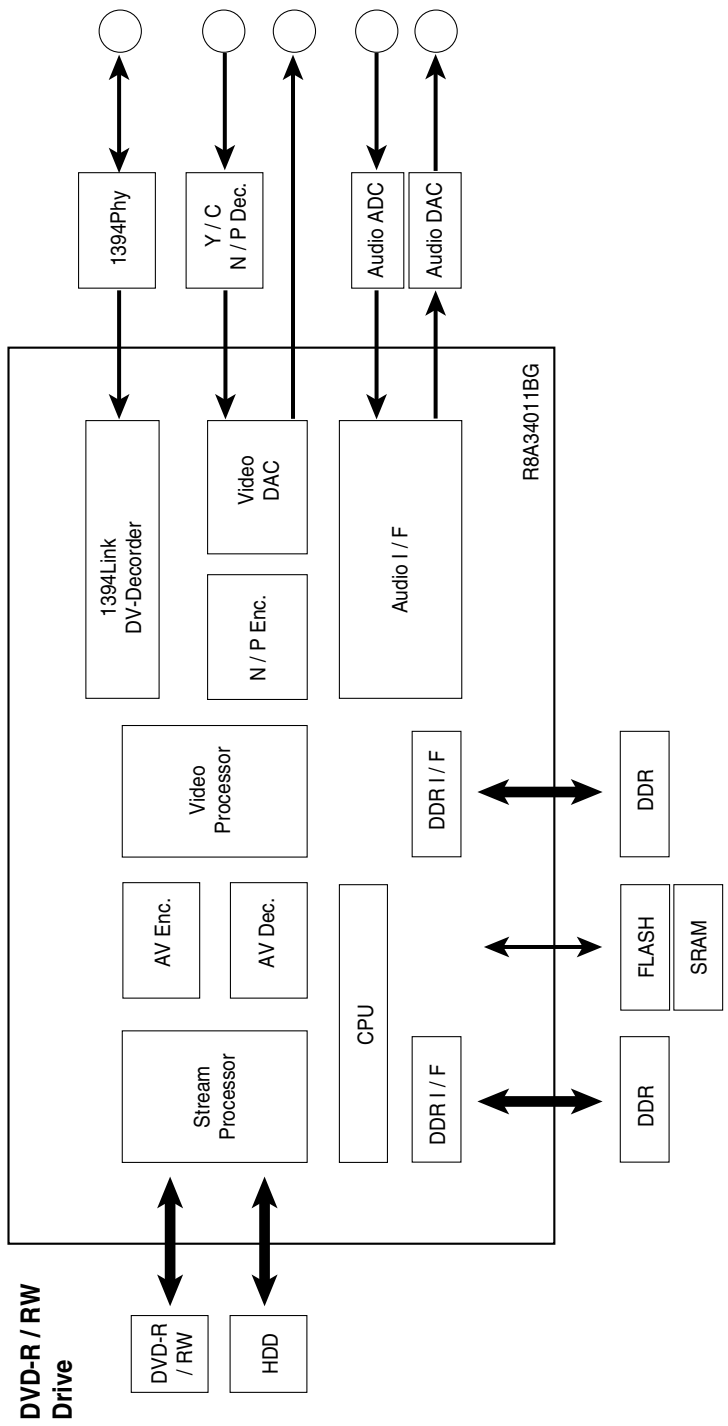
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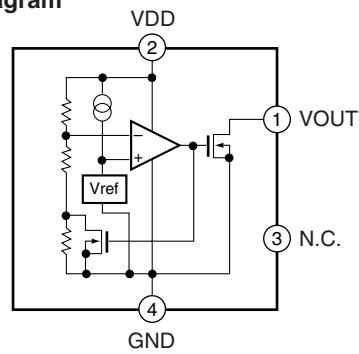
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■ BU4828F (MAIN ASSY : IC3706)

- Reset IC

● Block Diagram



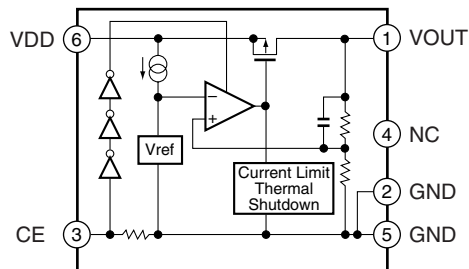
● Pin Discription

No.	Pin Name	I/O	Function
1	VOUT	O	Output Pin
2	VDD	I	Power Supply Input pin
3	N.C.	–	N.C.
4	GND	–	GND pin

■ R1170S331B (MAIN ASSY : IC4506)

- Regulator IC

● Block Diagram



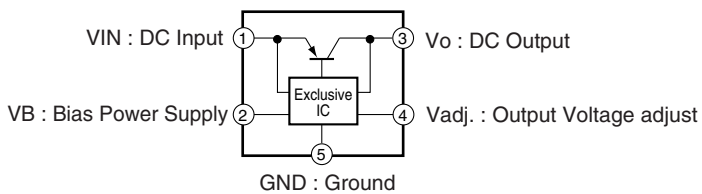
● Pin Discription

No.	Pin Name	I/O	Function
1	VOUT	O	VR Output Pin
2	GND	–	GND pin
3	CE.	O	Cjip Enable ("H" active)
4	N.C.	–	N.C.
5	GND	–	GND pin
6	VDD	I	Power Supply Input pin

■ PQ035ZN01ZPH (MAIN ASSY : IC4509)

- Regulator IC

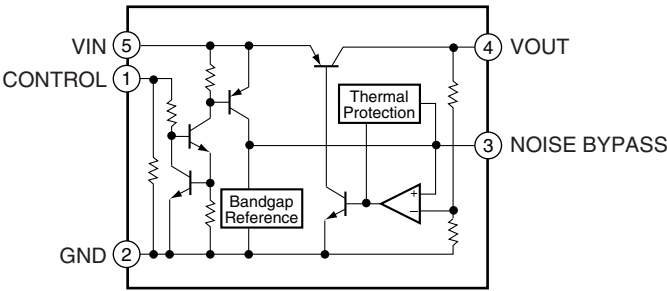
● Block Diagram



■ NJM2861F33 (MAIN ASSY : IC4512)

- Regulator IC

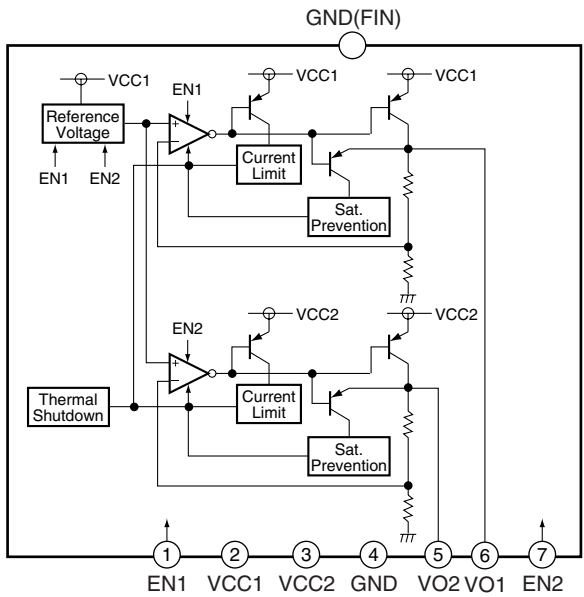
● Block Diagram



■ BA25F18WHFP (MAIN ASSY : IC4571)

- Dual Low-Dropout Voltage Regulator

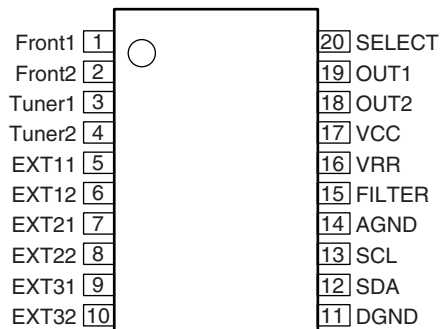
● Block Diagram



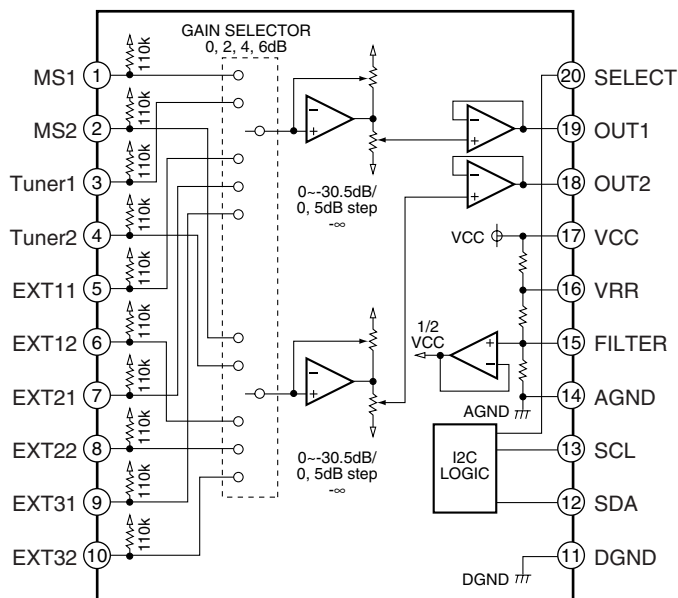
BD3823FV (JACB ASSY : IC103)

• Audio Sound Processor

● Pin Layout (Upper view)



● Block Diagram



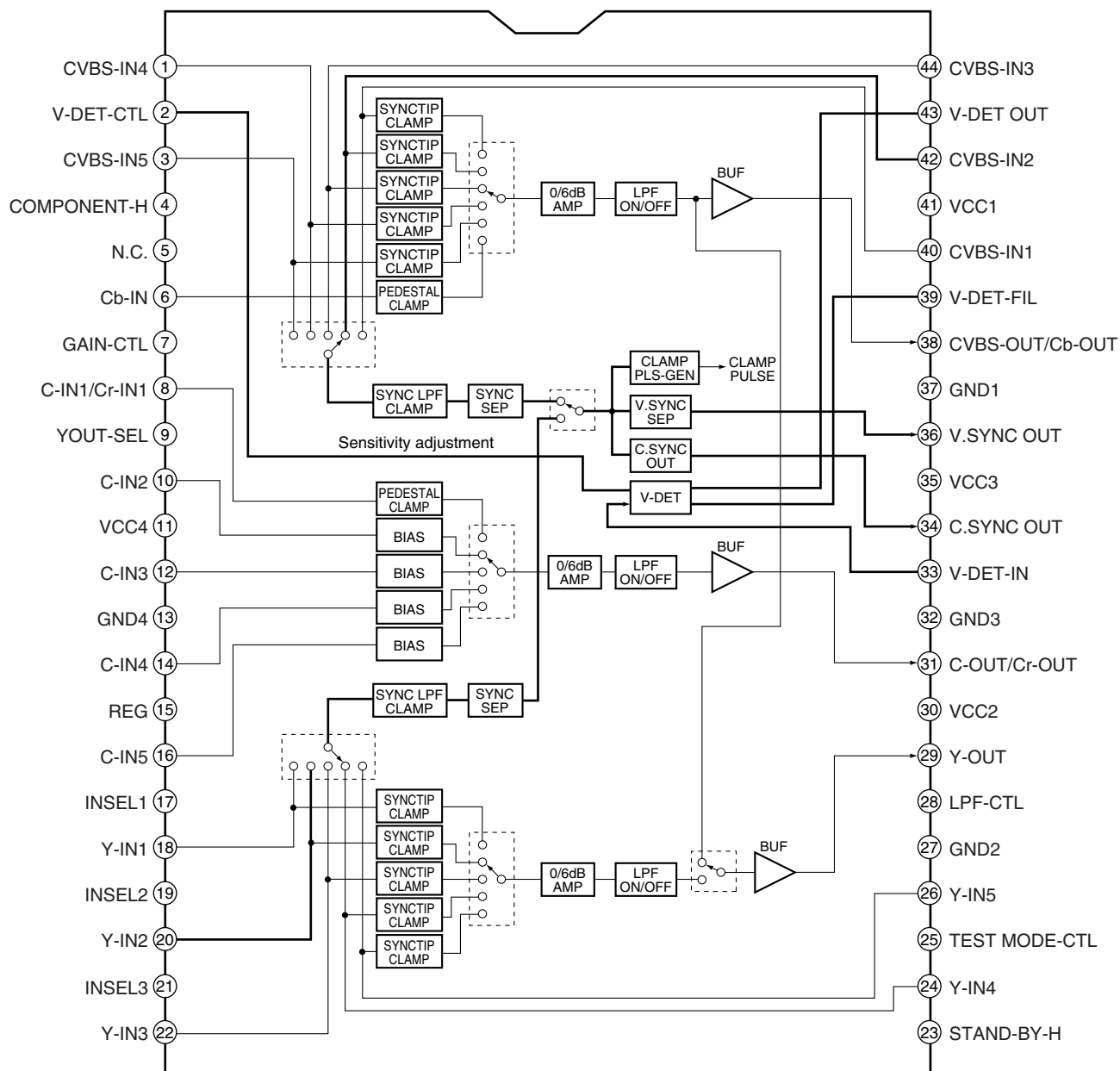
● Pin Discription

No.	Pin Name	I/O	Function
1	MS1	I	Music server input terminal
2	MS2	I	Music server input terminal
3	Tuner1	I	Tuner input terminal of ch1
4	Tuner2	I	Tuner input terminal of ch2
5	EXT11	I	External 1 input terminal of ch1
6	EXT12	I	External 1 input terminal of ch2
7	EXT21	I	External 2 input terminal of ch1
8	EXT22	I	External 2 input terminal of ch2
9	EXT31	I	External 3 input terminal of ch1
10	EXT32	I	External 3 input terminal of ch2
11	DGND	—	Ground terminal
12	SDA	I	I2C BUS data terminal
13	SCL	I	I2C BUS clock terminal
14	AGND	—	GND terminal
15	FILTER	I	1/2 VCC terminal
16	VRR	I	Ripple rejection filter terminal
17	VCC	—	Power supply terminal
18	OUT2	O	Volume output terminal of ch2
19	OUT1	O	Volume output terminal of ch1
20	SELECT	I	Slave address selection terminal

LA73031V (JACB ASSY : IC401)

- Video Input selector

● Block Diagram



The parts connected by wide lines operate even at standby mode.

7.3 CAUTIONS ON HANDLING THE HDD

(1) Cautions on Handling the HDD

- The HDD is very sensitive to shocks and vibrations. Care must be taken especially during operation (when the power is on).
- The HDD is very sensitive to electrostatic charges.
- Rapid change in temperature or humidity may cause deterioration of the HDD.

Note: After receiving damage caused by any above-mentioned factors, the HDD may operate normally for dozens or some hundreds of hours but then suddenly crash. If you are certain you have damaged a new repair part (HDD) while making repairs, do not use the part.

The HDD is about 10 times as sensitive to shock during operation than during nonoperation.

Reference: Main specifications on damage to the HDD

	During operation	During nonoperation
Shock G (acceleration)	<approx. 20 G	<approx. 200 G
Temperature change	< 15°C/hour	
Moisture change	< 20%/hour	

Reference: Estimate value of falling distance vs. shock (G) when the HDD is dropped without protection

Falling distance	Landing surface	Granite surface	Concrete floor	Synthetic-resin-coated table	Antistatic sponge
0.5 inch / 12.7 mm		387	217	200	26
1.0 inch / 25.4 mm		595	457	310	37
2.0 inch / 50.8 mm		1133	600	680	70
4.0 inch / 101.6 mm		1795	1040	1050	267

(2) Cautions on handling the product on which the HDD is mounted or the HDD as a repair part, and examples of dangerous handling

[Cautions on handling the product on which the HDD is mounted]

- While the unit is turned on, the HDD is always in operation. Be sure NOT to impart shock to the unit.

• Examples of dangerous handling: while the power is on

- Bumping on the bonnet
- Dropping an object, such as a small screwdriver or remote control unit, onto the bonnet, or bumping an object against the cabinet
- Moving the unit by dragging
- Stacking another product on the unit

Note: Be sure NOT to impart shock, such as bumping or hitting a screwdriver against the HDD, during diagnosis with the bonnet open.

• Examples of dangerous handling: while the power is off

- Imparting strong shock, although the HDD is more resistant to shock when the power is off
 - Dropping the unit from a height of several centimeters, or after lifting one side of the unit up, then letting the unit drop.
 - Do NOT move the unit immediately after the power is turned off. Wait at least 30 seconds after the indication on the FL display changed from POWER OFF to the clock indication before moving the unit.
- If the AC power cord is accidentally disconnected before turning the unit off, wait at least for one minute before moving it. In this case, damage to the HDD caused by sudden shutoff may be small, because the emergency relief mechanism is activated. However, if sudden shutoff occurs during recording or playback, recorded data may be damaged. Be sure to check operations.

[Cautions on handling the HDD as a repair part]

1. Handle the HDD in a safe environment:
 - Handle the HDD over an antistatic pad that can also absorb shock.
 - Wear wrist bands to prevent electrostatic charges generated in your body from affecting the HDD.
2. The following must be observed when handling the HDD:
 - Handle one HDD at a time. Do NOT hold several HDDs at the same time.
 - Grip the HDD on both sides so that you do not touch its terminals or circuit boards.
 - Do NOT stack one HDD onto another HDD (even if the HDDs are protected in antistatic bags).
 - Do NOT bump the HDDs against one another.
 - Do NOT bump any tool, such as a screwdriver, or other hard object against the HDD.
 - When a repair part (HDD) is transported and there is a large temperature difference between outdoors and indoors, to the indoor, leave it in its package for about a half day to gradually cool or warm the HDD to room temperature before unpacking it.

[Notes on packing for shipment]

- When returning a defective HDD for analysis, handle with care as if it were a good product. Otherwise, the results of analysis may not be correct.
- When packing, use the antistatic bag and packing materials in which the repair part for service was delivered. Attach a copy of the slip for service or a memo stating symptoms in as much detail as possible.

■ Outline and part No. of the HDDs

*Pioneer's part No. is not stamped.

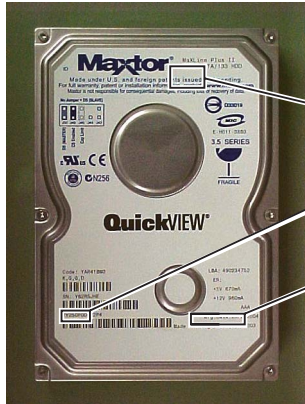
Model Name	Capacity	Maxtor		Western Digital		Seagate	
		Pioneer's Part No. (for service)	Manufacturer's Part No.	Pioneer's Part No. (for service)	Manufacturer's Part No.	Pioneer's Part No. (for service)	Manufacturer's Part No.
DVR-531H-S DVR-533H-S	80GB	VXF1076	6L080P0	VXF1066	WD800BB -xxJKCx	VXF1036 VXF1084	ST38001ACE-
DVR-633H-S	160GB			VXF1047 VXF1068	WD1600BB-xxGUAx WD1600BB-xxGUCx	VXF1040 VXF1086	ST316002ACE-

- When replacing the HDD, carefully check the capacity and manufacturer's part No. on the part label to avoid replacing with a similar but inappropriate product. You can also check the model No. of the mounted HDD on the Service mode screen.
- Do NOT use repair parts, such as commercially available HDDs, other than those designated above, as their functions, performance or reliability cannot be guaranteed.

Maxtor

Western Digital (80GB)

Western Digital (160GB)



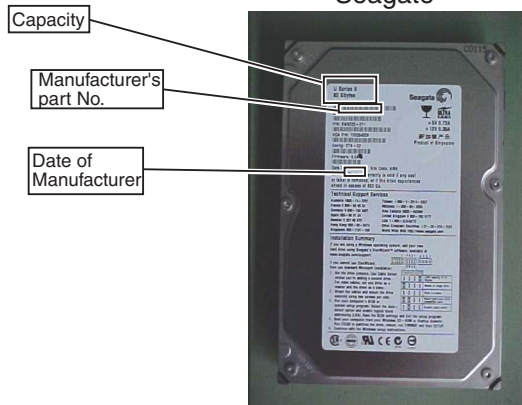
Capacity

Manufacturer's part No.

Date of Manufacturer

Note : The body of HDD 80GB and 160GB/250GB types of Western Digital are different. And the body color is black.

Seagate



Capacity

Manufacturer's part No.

Date of Manufacturer

How to read the information of Seagate HDD

Ex. Date Code 0435x
04 year (from July)
manufactured on 35th week

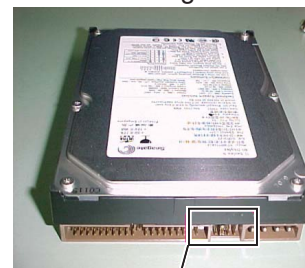
Fig.1 Location of the data on capacity and part No. of the HDD

■ Confirmation of the jumper pin location of the HDD

Maxtor

Western Digital

Seagate



Jumper pin
Setting : Cable Select(CS)

Jumper pin
Setting : Cable Select(CS)

Jumper pin
Setting : Cable Select(CS)

Disc / content format playback compatibility

General disc compatibility

This recorder is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD and DVD, may be in an unplayable format—see below for further compatibility information.



- Also compatible with KODAK Picture CD
- **DVD** is a trademark of DVD Format/Logo Licensing Corporation.
About DualDisc playback
- A DualDisc is a new two-sided disc, one side of which contains DVD content — video, audio, etc. — while the other side contains non-DVD content such as digital audio material.
The non-DVD, audio side of the disc is not compliant with the CD Audio specification and therefore may not play.
For more detailed information on the DualDisc specification, please refer to the disc manufacturer or disc retailer.
- is a trademark of Fujii Photo Film Co. Ltd.

DVD-R/RW compatibility

This recorder will play and record DVD-R/RW discs.

Compatible media:

- DVD-RW Ver. 1.1, Ver. 1.1 / 2x, Ver. 1.2 / 2—4x and Ver. 1.2 / 2—6x
- DVD-R Ver. 2.0 and Ver. 2.0 / 4x / 8x / 16x, and Ver. 2.1 / 1—8x / 1—16x

Recording formats:

- DVD-R/RW: Video Recording (VR) format and DVD-Video format (Video mode)

Readable formats:

- DVD-R/RW: Video Recording (VR) format and DVD-Video format (Video mode)

Note that older models of DVD recorders and DVD writers may reject DVD-RW Ver. 1.2 discs and/or corrupt the data on the disc. If you want to share DVD-RW discs between this recorder and an older recorder/writer, we recommend using Ver. 1.1 discs.

CD-R/RW compatibility

This recorder cannot record CD-R or CD-RW discs.

- Readable formats: CD-Audio, Video CD, ISO 9660 CD-ROM* containing MP3, WMA or JPEG files
* ISO 9660 Level 1 or 2 compliant. CD physical format: Mode1, Mode2 XA Form1. Romeo and Joliet file systems are both compatible with this recorder.
- Multi-session playback: Yes (except CD-Audio and Video CD)
- Unfinalized disc playback: CD-Audio only

Compressed audio compatibility

- Compatible media: CD-ROM, CD-R, CD-RW
- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 44.1 or 48kHz
- Bit-rates: Any (128Kbps or higher recommended)
- Variable bit-rate (VBR) MP3 playback: Yes
- VBR WMA playback: No
- WMA encoder compatibility: Windows Media Codec 8 (files encoded using Windows Media Codec 9 may be playable but some parts of the specification are not supported; specifically, Pro, Lossless, Voice and VBR)
- DRM (Digital Rights Management) file playback: No (see also DRM in the Glossary on page 110)
- File extensions: .mp3, .wma (these must be used for the recorder to recognize MP3 and WMA files — do not use for other file types)
- File structure: Up to 99 folders / 999 files (if these limits are exceeded, only files and folders up to these limits are playable)

WMA (Windows Media Audio) compatibility

A



The Windows Media[®] logo printed on the box indicates that this recorder can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media[®] Player for Windows[®] XP,

B

Windows Media[®] Player 9 or Windows Media[®] Player 10 series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.2* still image files
*File format used by digital still cameras
- Sampling ratio: 4:4:4, 4:2:2, 4:2:0
- Horizontal resolution: 160 — 5120 pixels
- Vertical resolution: 120 — 3840 pixels
- Progressive JPEG compatible: No
- File extensions: .jpg, .jpeg, .jif, .jfif (must be used for the recorder to recognize JPEG files — do not use for other file types)
- File structure: The recorder can load up to 99 folders / 999 files at one time *(if there are more files/folders that this on the disc then more can be reloaded)*

C

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this recorder.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

D

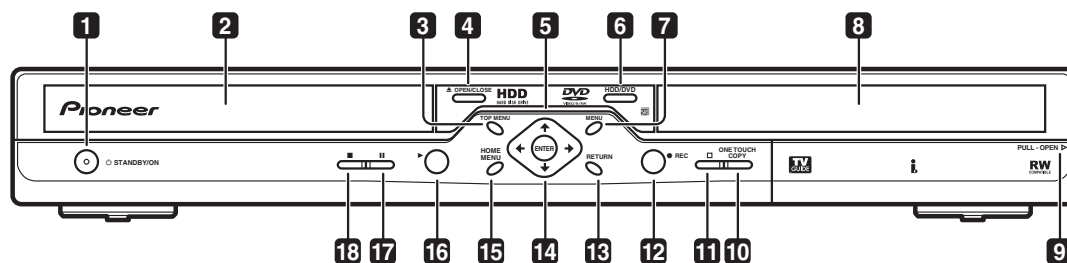
E

F

8. PANEL FACILITIES

8.1 FRONT SECTION

Front panel



1 **STANDBY/ON**

Press to switch the recorder on/into standby.

2 **Disc tray**

3 **DISC NAVIGATOR/TOP MENU**

Press to display the Disc Navigator screen, or the top menu if a DVD-Video disc is loaded.

4 **OPEN/CLOSE**

Press to open/close the disc tray.

5 **HDD/DVD indicator**

Lights blue when the HDD is selected; orange when DVD is selected.

6 **HDD/DVD**

Press to switch between the hard disk drive (HDD) and DVD for recording and playback.

7 **MENU**

Press to display a DVD-Video disc menu.

8 **Front panel display and IR remote sensor**

9 **Front panel inputs**

Pull the cover down where indicated to access the front panel input jacks (audio, video and DV¹). Especially convenient for connecting camcorders and other portable equipment.

10 **ONE TOUCH COPY**

Press to start One Touch Copy of the currently playing title to DVD or the HDD. See also the *Note on copying* on page 9.

11

Press to stop recording.

12 **REC**

Press to start recording. Press repeatedly to set the recording time in 30 minute blocks.

13 **RETURN**

Press to go back one level in the on-screen menu or display.

14 **and ENTER**

Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

When stopped, the buttons can also be used to change the TV channel.

15 **HOME MENU**

Press to display the Home Menu, from which you can navigate all the functions of the recorder.

16

Press to start or restart playback.

17

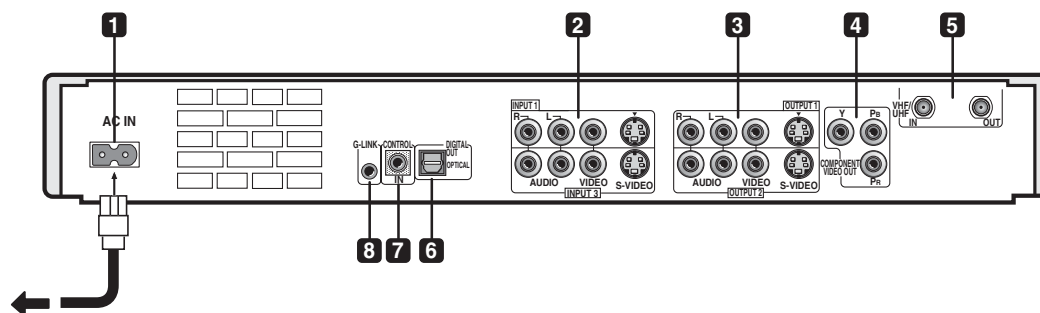
Press to pause or resume playback.

18

Press to stop playback.

8.2 REAR PART

Rear panel connections



1 AC IN

After making all other connections, connect to a power outlet using the supplied power cable only.

2 Audio/video inputs 1 and 3

Two sets of audio/video inputs (stereo analog audio; composite and S-video video) that you can use to connect to satellite receivers, TVs, VCR or other source component for recording.

3 Audio/video outputs 1 and 2

Two sets of audio/video outputs (stereo analog audio; composite and S-video video) that you can use to connect TVs or monitors.

4 COMPONENT VIDEO OUT

A high-quality video output for connecting to a TV or monitor with a component video input.


5 VHF/UHF IN (RF IN)/OUT

Connect your TV antenna to the **VHF/UHF IN (RF IN)** jack. The signal is passed through to the **VHF/UHF OUT** jack for connection to your TV.

6 OPTICAL DIGITAL OUT

A digital audio output for connecting to an AV amp/receiver, Dolby Digital/DTS decoder or other equipment with optical digital input.

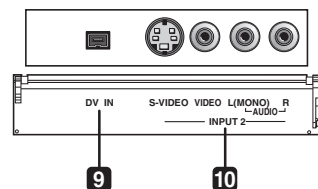
7 CONTROL IN

Use to control this recorder from the remote sensor of another Pioneer component with a **CONTROL OUT** terminal and bearing the Pioneer  mark. Connect the **CONTROL OUT** of the other component to the **CONTROL IN** of this recorder using a mini-plug cord.

8 G-LINK™

Use to connect the supplied G-LINK™ cable for use with the TV Guide On Screen™ interactive program guide and a control-capable set-top box.

Front panel connections



On the right side of the front panel a flip-down cover hides more connections.

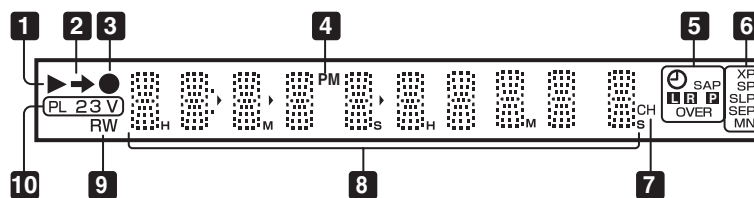
9 DV IN (DVR-633/533H-S only)

A DV input i.LINK connector, suitable for connecting a DV camcorder.

10 Audio/video input 2

Audio/video input (stereo analog audio; composite and S-video video), especially suitable for camcorders, game consoles, portable audio, etc.

Display



1 ►
Lights during playback; blinks when playback is paused.

2 →
Lights when copying.

3 ●
Lights during recording; blinks when recording is paused.

4 PM
Lights to indicate PM (after midday) for the clock display.

5 ⌚
Lights when a timer recording has been set.
(Indicator blinks if the timer has been set to DVD but there isn't a recordable disc loaded, or the timer has been set to HDD but the HDD is not recordable.)

SAP
Lights when the currently selected TV channel has a Second Audio Program channel.

■ ■
Indicates which channels are recorded when Dual Mono is selected.

P
Lights when the component video output is set to progressive scan.

OVER
Lights when the analog audio input level is too high.

6 Recording quality indicators

XP
Lights when the recording mode is set to **XP** (best quality).

SP
Lights when the recording mode is set to **SP** (standard play).

LP / SLP
Lights when the recording mode is set to **LP** (long play) or **SLP** (super long play).

EP / SEP
Lights when the recording mode is set to **EP** (extended play) or **SEP** (super extended play).

MN
Lights when the recording mode is set to **MN** (manual recording level) mode.

7 CH
Channel indicator for the built-in TV tuner.

8 Character display

9 R / RW
Indicates the type of recordable DVD loaded: DVD-R or DVD-RW.

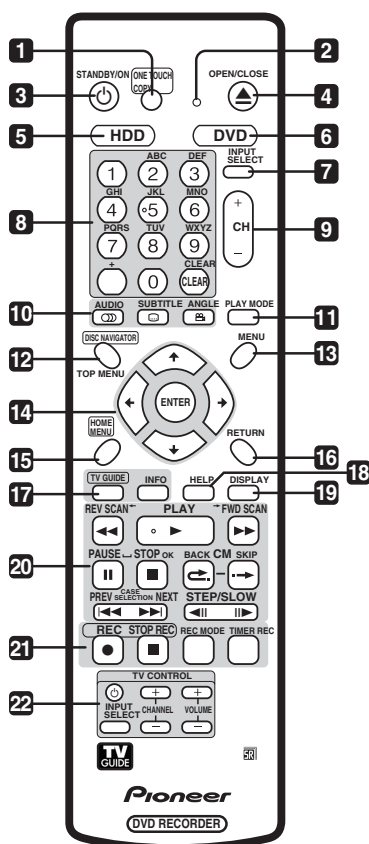
10 PL
Lights when a VR mode disc is loaded and the recorder is in Play List mode.

2 3
Shows the remote control mode (if nothing is displayed, the remote control mode is 1).

V
Lights when an unfinalized Video mode disc is loaded.

8.4 REMOTE CONTROL

Remote control



1 ONE TOUCH COPY

Press to start One Touch Copy of the currently playing title to DVD or the HDD. See also the *Note on copying* on page 9.

2 Remote control indicator

Lights when setting up the remote control for use with a TV and when setting the remote control mode.

3 STANDBY/ON

Press to switch the recorder on/into standby.

4 OPEN/CLOSE

Press to open/close the disc tray.

5 HDD

Press to select the hard disk (HDD) for recording or playback.

6 DVD

Press to select the DVD for recording or playback.

7 INPUT SELECT

Press to change the input to use for recording.

8 Alphanumeric buttons, + and CLEAR

Use the number buttons for track/chapter/title selection; channel selection, and so on. The same buttons can also be used to enter names for titles, discs and so on.

Use the + button to enter non-alphanumeric characters and symbols.

Use **CLEAR** to clear an entry and start again.

9 CH +/-

Press to change the channel of the built-in TV tuner.

10 DVD playback functions

AUDIO

Changes the audio language or channel. (When the recorder is stopped, press to change the tuner audio.)

SUBTITLE

Displays/changes the subtitles included in multilingual DVD-Video discs.

ANGLE

Switches camera angles on discs with multi-angle scenes.

11 PLAY MODE

Press to display the Play Mode menu (for features such as search, repeat and program play).

12 DISC NAVIGATOR/ TOP MENU

Press to display the Disc Navigator screen, or the top menu if a DVD-Video disc is loaded.

13 MENU

Press to display the disc menu if a DVD-Video disc is loaded. While in the TV Guide On Screen™ system, press to display the panel menu.

14 ↑/↓/←/→ and ENTER

Used to navigate all on-screen displays. Press **ENTER** to select the currently highlighted option.

15 HOME MENU

Press to display the Home Menu, from which you can navigate all the functions of the recorder.

16 RETURN

Press to go back one level in the on-screen menu or display. Also use to exit the TV Guide On Screen™ system.

17 TV Guide On Screen™ navigation

TV GUIDE

Press to access the TV Guide On Screen™ system; press again to exit.

INFO

Press to see additional information for the highlighted TV Guide On Screen™ item.

18 HELP

Press for help on how to use the current GUI screen.

19 DISPLAY

Displays/changes the on-screen information displays.

20 Playback controls

◀◀ REV SCAN / FWD SCAN ▶▶

Press to start reverse or forward scanning. Press again to change the speed.

▶ PLAY

Press to start playback.

⏸ PAUSE

Press to pause playback or recording.

■ STOP

Press to stop playback.

CM BACK (commercial back)

Press repeatedly to skip progressively backward through the audio or video playing.

CM SKIP (commercial skip)

Press repeatedly to skip progressively forward through the audio or video playing.

⏮ PREV / NEXT ⏭

Press to skip to the previous or next title/chapter/track/folder; or to display the previous or next menu page.

Also use to display the previous/next page of a TV Guide On Screen™ listing.

◀|| STEP/SLOW ||▶

During playback, press to start slow-motion playback; while paused, press to show the previous or next video frame.

Also use to display the previous/next day of a TV Guide On Screen™ listing.

21 Recording controls

● REC

Press to start recording. Press repeatedly to set the recording time in blocks of 30 mins. With a program highlighted in the TV Guide On Screen™ system, press to set that program to record.

□ STOP REC

Press to stop recording.

REC MODE

Press repeatedly to change the recording mode (picture quality).

TIMER REC

Press to set a timer recording from the TV Guide On Screen™ system.

22 TV CONTROL

After setting up, use these controls to control your TV.

Jigs list

A

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	adjustment, diagnosis
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
DVD Recorder Data Disc	GGV1239 (*)	diagnosis (ID data setting)
Flexible Cable (28P)	GGD1437	diagnosis of MAIN Assy
ATA cable	GGD1170	Extension of HDD
4P Power Cable	VKP2291	Extension of HDD
Extension Board (A)(B)	GGF1532	diagnosis of MAIN Assy
Emergency Disc Ejection Rod	GGF1529	Forced ejection of the Disc
Acetate Tape	GYH1001	Performance keeping of DRIVE Assy

B

(*) GGV 1239 will be available on June 2005.
For servicing until June 2005, use GGV1179 disc.



Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

C

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

D

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

E

F